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Poverty Orientation of Value Chains

For Domestic and Export Markets in Ghana

The SLE team:
Christian Berg (Teamleiter), Susanne Bercher-Hiss, Martina Fell,
Alexandra Hobinka, Ulrike Müller, Siddharth Prakash

In cooperation with:
Paulina Addy, Joshua Ahiaba, Theresa Antoh, Natalia Bonney, Percy Anaab Bukari,
Issahaku M. Hardi, Barbara Kuukua Oppong, Cecilia Adomah Yeboah Jnr.

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Foreword

The Centre for Advanced Training in Rural Development (Seminar für Ländliche Entwicklung), at the Humboldt University Berlin, has trained young professionals in the field of German and international development cooperation for more than forty years.

Three-month consulting projects conducted on behalf of German and international cooperation organisations form part of the one-year postgraduate course. In multidisciplinary teams, young professionals carry out studies on innovative future-oriented topics, and act as consultants. Including diverse local actors in the process is of great importance here. The outputs of this “applied research” are an immediate contribution to the solving of development problems in rural areas.

Over the years, SLE has carried out more than a hundred consulting projects in more than sixty countries, and regularly published the results in this series.

In 2006, the four groups from the 44th course of the SLE simultaneously conducted projects in Georgia, Ghana, Mozambique, and Nicaragua which focussed on the planning and poverty-orientation of development programmes.

The present study was sponsored by the German Technical Cooperation (GTZ) and the German Federal Ministry for Economic Development and Cooperation (BMZ).

Prof. Otto Kaufmann
Dean
Agricultural Horticultural Faculty
Hunboldt University Berlin

Carola Jacobi-Sambou
Director
SLE – Centre for Advanced
Training in Rural Development

Disclaimer:

The findings, interpretations, and conclusions in this report are those of the authors. They do not necessarily represent the views of the German Federal Ministry for Economic Cooperation and Development (BMZ) or the German Technical Cooperation (GTZ).

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Executive summary

1 Considering export varieties of mango, improved varieties of cassava for the production of *gari* (fermented and roasted meal), and grasscutter rearing (*Thryonomos swinderianius*) as examples, this study investigates the poverty orientation of agricultural value chains for domestic and export markets in Ghana. The guiding hypothesis is that adding value to export and domestic commodities generates substantial profits and employment along the chains, and hence contributes to poverty alleviation.

2 The ongoing debate on the essence of pro-poor growth forms the frame for this study. Researchers and development practitioners around the globe widely accept that growth is a necessary but not sufficient precondition for poverty reduction. The key question is **how** growth-oriented programmes such as value chain promotion activities, by way of linking producers in developing countries to markets and making markets work for the poor, can contribute to the achievement of Millennium Development Goals at the best possible rate.

3 Recent economic and poverty trends in Ghana demonstrate that improvements in national indicators may hide distributional patterns of growth. Despite impressive average annual per capita growth rates, a significant reduction in the percentage of the population living below the poverty line, and a stable Gini-Index over the past five years, poverty reduction has been distributed unevenly between and within the regions: The proportion of poor (who live on less than US$ 1 per day) has remained unchanged – or even increased – in some regions, particularly in the North. There is a strong rural-urban poverty bias and there are ‘poverty pockets’ in regions that are better off on average. In addition, poverty affects more women than men in Ghana.

4 The German-Ghanaian study team has qualitatively assessed the following working hypotheses: a) processing for domestic markets, e.g. mango pulp or *gari* production, generates more employment and value than the export of, say, fresh fruits; b) price levels of domestic and export markets (e.g. for fresh mangoes) do not clearly favour exports, especially if costs of market entry are taken into account; and c) increasing market orientation and commercialisation improves social and food security of small farmers.

5 Agricultural production in Ghana is dominated by smallholders, who represent probably more than 98% of all farmers in the country. To assess distributional effects of value chain promotion, the study team made a distinction between commercial, semi-commercial, non-poor but risk-prone and “resource-poor” small-scale farmers. The latter are characterised by a low resource endowment, seasonal food insecurity, and a tendency towards risk aversion. They may provide labour on other farms and cannot afford to send all their children to school.

6 The **regional distribution** of the three commodities under review shows that until now only cassava/*gari* production reaches out to remote and poverty-stricken rural areas, though not for the extreme North. Exotic (export) varieties of mango, in contrast, are mostly grown in the proximity of roads and markets, and grasscutter rearing is concentrated in (peri-)urban areas.

7 There is a growing **market** with high price elasticity of demand for mangoes both in Ghana and abroad (e.g. in the European Union). The competition on the international mango market, however, is stiff: Other countries, such as Brazil or Peru, currently produce at lower cost than Ghana. The production of grasscutter meat, which is considered a delicacy throughout West Africa, is also unable to satisfy the demand. Farm meat (from domesticated animals), however, has to compete with bush meat, which is offered cheaper on domestic markets and is still preferred by most consumers. *Gari* is in constant demand by large institutional buyers such as schools, hospitals and prisons, while individual demand is rather low. Other producers in the region, such as Nigeria, are strong competitors in regard to both volumes and prices.

8 The value chains under review are largely driven by market forces, and not so much by other coordination mechanisms such as gift exchange or hierarchies. Nevertheless, the chains are influenced by typical market failures, e.g. cyclic fluctuations in cassava prices. The main reason lies in the widespread mistrust between and among value chain operators, accompanied by a lack of contract-based relationships (e.g. in the form of outgrower schemes) and non-compliance with contractual agreements. Weak formal market rules and non-supportive informal institutions lead to high transaction costs of coordination, market exploration, and business establishment and maintenance.

9 Information and profits are unequally distributed along the chains and lie mainly with traders/exporters, who are usually better organised than other value chain operators. The case of grasscutter farmers' associations, however, who perform virtually all chain functions from input supply to marketing, provides a good example of vertical integration and its positive effect on producer income.

10 The competitiveness of all three sectors under review is limited by various **inefficiencies** which particularly affect resource-poor producers. Poor quality of specific inputs (e.g. outdated and imprecisely labelled agrochemicals for use in mango production, chemically treated fodder for grasscutters), inadequate production and handling practices resulting in low yields, waste of by-products and considerable post-harvest losses, and rudimentary processing equipment (e.g. for *gari*) call for targeted interventions to capture and enhance value along the chains.

11 Investment and production costs constitute major **entry barriers** for resource-poor producers to the markets under review. Mango seedlings, hired labour for land

preparation, improved *gari* processing equipment, or grasscutter breeding stocks and cages are too costly for the poor. They also have difficulties in meeting certain product quality requirements (like standards for export mangoes) or in supplying large buyers on a regular basis. Existing support mechanisms to lower the investment risks of (potential) producers, to build the required institutional and individual capacities, and to develop innovative financing schemes are still few and at best on a trial stage.

12 Consequently, the study team could hardly observe direct positive **poverty effects** of existing promotional activities for the mango and grasscutter value chains. Very few resource-poor farmers have managed to start these comparatively lucrative businesses (with factual results in terms of income and food security still to be seen), be it as input suppliers, producers, or processors. *Gari* production, in contrast, involves thousands of female micro-processors, who also largely decide on the disposition of their small but significant revenues. Other poverty effects in terms of employment for the poor, lower prices of inputs and products used or consumed by the poor, or in terms of health and environment are also limited in the mango and grasscutter industries. The production of these commodities, for instance, requires seasonal, part-time and/or skilled labour, and the products are not consumed by the poor.

13 All three commodities under review possess **potentials for pro-poor value chain promotion**. Resource-poor mango farmers could benefit from additional cash income during lean seasons but require financial support to bridge the negative cash flow during the first 4-5 years of plantation establishment (e.g. through their integration into pre-financing outgrower schemes). It is also worth looking further into organic mango production, which may better suit their needs for labour intensive and less capital intensive production. The extension of mango production in suitable poor regions in the North also requires local processing and infrastructure improvements (especially roads) to create employment and minimise post-harvest losses.

14 Resource-poor *gari* processors could increase their efficiency of production by improved processing equipment (graters, squeezers, etc.), possibly in connection with the establishment of processing plants on community level independent from but at the same time in proximity to cassava farms. Storage facilities would help them to receive better prices off the high season, and the formation of processors' associations could not only improve their position towards traders but also facilitate their linking to institutional buyers. Product development and innovation (e.g. packaged *gari* for niche markets) as well as other forms of cassava processing (e.g. into starch) may be worth exploring.

15 In view of very limited employment opportunities for poor (unskilled) labourers in the grasscutter sector, the only avenue for a pro-poor support of this value chain lies in stronger attempts to link resource-poor farmers to the grasscutter market. Easy access to fodder and no need for land are potentials for their integration into the

grasscutter business. Interested poor farmers, however, need to be enabled to take informed decisions on labour and cash flow implications of grasscutter rearing. Close monitoring of their performance – in combination with learning-by-doing and local show-casing of best practices – is also required to prevent failures. In addition, appropriate technologies (e.g. low-cost cages) would help to reduce investment costs.

16 The study findings suggest that pro-poor potentials of production and processing for domestic markets are under-utilised in Ghana. Price levels on export markets do not justify a sole focus on export promotion, especially if the cost and possibility of market entry of the poor are taken into account. In addition, Ghana (still) has no appreciable site or cost advantage over regional and international competitors.

17 The **recommendations** by the study team are based on the assumptions that resource-poor producers and (potential) processors in Ghana are involuntarily excluded from access to existing markets; that secure and reasonably paid jobs for the poor in production, processing and distribution of agricultural commodities are in urgent need; that the poor could benefit from increasing market orientation and commercialisation of agriculture; and that value chain promotion measures can be designed and implemented in a poverty-oriented way.

18 In their selection of value chains and the design of promotional activities, development agencies need to consider poverty impact criteria: Which strategic options – export promotion, import substitution, domestic market development – and which support activities – in the fields of value addition, value capturing, market diversification – create the broadest and most immediate benefits for the poor? What are the prospects for direct integration of resource-poor producers in the chain? How much “decent” employment, i.e. reasonably paid jobs at certain minimum social standards, can be generated for the poor? What are possible effects on prices relevant to the poor?

19 For value chain promotion to be pro-poor, it needs to be firmly embedded in direct measures to make resource-poor producers ‘linkable’ to markets. Without developing necessary physical and institutional infrastructure and human capacities at the micro level, value chain support activities at meso and macro levels are likely not only to by-pass the poor but to widen the gap between the poor and non-poor.

20 Poverty alleviation is essentially of public interest. Public funds for agribusiness promotion, therefore, need to be channelled foremost to targeted activities that can sufficiently prove their poverty impact. Direct support or sponsorships to commercial farmers and export enterprises, in contrast, can be provided by the private sector (international companies, consultancy firms, national and foreign associations and federations, etc.). Development agencies should rather facilitate the creation and strengthening of linkages between the poor and private service providers and companies.

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Abbreviations

AEA	Agricultural Extension Agent
ADR	Action and decision-oriented research
ADRA	Adventist Development and Relief Agency International
BAR	Brong Ahafo Region
BMZ	Federal Ministry for Economic Cooperation and Development (*Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung*)
¢	Cedis (Ghanaian currency; 10,000 Cedis = US$ 1.05; US$ 1 = 9,484 Cedis, as of October 2006)
DED	German Development Service (*Deutscher Entwicklungsdienst*)
ECASARD	The Ecumenical Association for Sustainable Agriculture and Rural Development
EurepGAP	Euro-Retailer Produce Working Group Good Agricultural Practices
FAO	Food and Agriculture Organisation
FASDEP	Food and Agriculture Sector Development Policy
FOB	Free on board
GAP	Good agricultural practices
GDP	Gross domestic product
GEPC	Ghana Export Promotion Council
GIS	Geographical information system
GoG	Government of Ghana
GPS	Geographical positioning system
GPRSP	Growth and Poverty Reduction Strategy Paper
GTZ	German Technical Cooperation (*Deutsche Gesellschaft für Technische Zusammenarbeit*)
HAG	Horticultural Association of Ghana
HDR	Human Development Report
IFAD	International Fund for Agricultural Development
ITFC	Integrated Tamale Fruit Company
JICA	Japan International Cooperation Agency
MOAP	Market Oriented Agricultural Programme
MoFA	Ministry of Food and Agriculture
MRL	Maximum residue level
NGO	Non-governmental organisation
NTE	Non-traditional export
OECD	Organisation for Economic Cooperation and Development
OICI	Opportunities Industrialisation Centres International

PAMPEAG	Papaya and Mango Producers and Exporters Association of Ghana
PRA	Participatory rural appraisal
RADU	Regional Agricultural Development Unit
R&D	Research and development
RTI(M)P	Root and Tuber Improvement (& Marketing) Programme
SLE	Centre for Advanced Training in Rural Development (*Seminar für Ländliche Entwicklung*)
SPEG	Sea-Freight Pineapple Exporters of Ghana
TIPCEE	Trade and Investment Programme for a Competitive Export Economy
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
WFP	World Food Programme

Structure of the report

The report is divided into five chapters. The first chapter introduces the study and gives an insight into the controversial debate on pro-poor growth that has become a buzzword in development cooperation. This is followed by information on the current status of policies related to growth and poverty reduction scenarios in Ghana. The chapter also sheds light on the initiation of the study and the main ideas behind it. Further, the system of objectives and hypotheses for the study are defined and a brief overview of the selected commodities, i.e. mango, *gari* and grasscutter is given. Finally, the chapter highlights the scope and limitations of the study.

Chapter 2 deals with the study concept and methodology. Firstly, the Value Chain Approach used by the German Technical Cooperation (GTZ), is explained briefly, highlighting some trends away from conventional approaches. Secondly, the chapter provides an overview of the conceptual framework and model developed by the study team to assess the poverty orientation of the value chains under review. This also includes the survey topics and questions. In the latter part, the chapter illustrates the study design, survey areas and methods of data collection.

Chapter 3 presents the results of the study. It commences with the definitions of various groups of farmers, as used in the study, differentiated according to their farm size and other poverty criteria. The chapter also highlights the current regional concentration of the three commodities in Ghana. The third part for the three commodities under focus describes specific issues ranging from market assessment, governance issues, and entry barriers, to poverty effects of the selected value chains and potentials for their pro-poor promotion.

Chapter 4 concludes with some general remarks that apply to all three commodities. It gives a comparative picture of the commodities with respect to their poverty effects.

In the final chapter, user-specific recommendations are made to design value chain promotion more pro-poor in the future.

1 Study background and objectives

In view of globalising trade relations, development cooperation increasingly aims at a sustainable, growth-oriented integration of developing countries into the world economy. In this context, the value chain approach gains more and more recognition in development projects and programmes. Adding value to export and domestic commodities is believed to generate substantial profits and employment along the chains and in this way contributes to poverty alleviation. This study investigates the poverty orientation of agricultural value chains for domestic and export markets in Ghana.

1.1 Value chain promotion and pro-poor growth

In recent years, the pro-poor growth approach has become one of the key concerns of developmental organisations and partner countries. The focus of the approach lies in the promotion of economic potentials of the (extreme) poor and disadvantaged groups of people (BMZ, 2006b, OECD, 2006). The main aim is to enable them to react and take advantage of new opportunities arising as a result of economic growth, and thereby overcome poverty.

There is an ongoing debate in the development community on the essence of pro-poor growth. This is based primarily on two lines of thought: one idea highlights the importance of a reduction in inequality as an integral part of pro-poor economic growth. The other definition emphasises the necessity to lift a maximum number of poor above the poverty line through an increase in their income, irrespective of distributional effects. Both definitions have recently been criticised for their neglect of poverty dimensions other than income (such as social security or political participation) and for ignoring reciprocal relations between poverty and growth (BMZ, 2006b:4).

The promotion of value chains in agribusiness aims to improve the competitiveness of agriculture in national and international markets and to generate greater value added within the country or region. The key criterion in this context is broad impact, i.e. growth that benefits the rural poor to the greatest possible extent or, at least, does not worsen their position relative to other demographic groups (GTZ, 2006). Pro-poor growth is one of the most commonly quoted objectives of value chain promotion.

1.2 Growth and poverty reduction in Ghana

In Ghana, the two different perceptions on pro-poor growth are still discussed controversially within and between governmental and non-governmental organisations, enterprises and development agencies. Over the past 15 years, Ghana has experienced accelerating economic improvements, indicated by an estimated average annual

per capita growth rate of 1.6% in the 1990s and 2.5% since 2000 (THE WORLD BANK, 2005; MCKAY AND ARYEETEY, 2004). This trend has been accompanied by democratic reforms and positive developments in national poverty indicators. The percentage of the population living below the poverty line has reduced nationwide from more than 50% in 1991 to about 40% today. Gini-Index estimates for 2001 - 2005 suggest that income distribution has been stable on aggregate (UNDP HDR).

However, poverty reduction has been distributed unevenly between and within the regions (BOOTH *et al.*, 2004:vi; MCKAY and ARYEETEY, 2004:6, WFP, 2004:1):

- The share of people living on less than US$ 1 per day has remained unchanged in some regions (Eastern, Upper West) and increased in others (Central, Northern, Upper East). In the three northernmost regions, between 70% and 90% of the population can be categorised as extremely poor.
- There is a strong rural poverty bias, with deprivation there being much more profound than in urban areas. However, increasing claims for land in the peri-urban areas of Accra and Kumasi for example, have been leading to impoverishment and food insecurity of dwellers in the outskirts who have become landless.
- There are 'poverty pockets' in regions that are comparatively better off on average (e.g. Kwabre and Sekyere West Districts in Ashanti Region), and also less deprived areas in regions that belong to the poorest in the country (e.g. Tolon Kumbugu District in Northern Region, Bawku West District in Upper East Region) (WFP, 2004:39-40).

Poverty affects more women than men in Ghana, and households with higher dependency ratios face higher levels of income poverty (MCKAY and ARYEETEY, 2004:12).

1.3 Users of the study

The study has three main users who have different expectations from its outcomes. Therefore, they are addressed in different manners.

The Market Oriented Agriculture Programme

The Ghanaian-German Development Cooperation currently focuses on good governance, employment-oriented private sector development and agriculture. The activities are embedded in the overall commitment of the Government of Ghana (GoG) towards poverty reduction.

The Market Oriented Agriculture Programme (MOAP) aims at enabling agricultural producers, processors, and traders to increase their competitiveness in domestic, regional, and export markets. The programme, scheduled in phases of three years

until 2013, is a joint effort of the Ghanaian Ministry of Food and Agriculture (MoFA), GTZ, and the German Development Service (DED).

Components of MOAP are: the promotion of selected agricultural value chains through technical support; strengthening of private sector service delivery for the agricultural sector; and the improvement of public sector service delivery to the agricultural private sector and agribusiness sector. In its core value chain component, MOAP has been focussing on five strategic commodities: pineapple, mango, chilli pepper, grasscutter, and aquaculture/fish (MOAP, 2005b:6).

The GTZ Sectoral Project Agricultural Trade

The GTZ Trade Programme – a joint activity of two Sectoral Projects, namely "Trade Policy, Trade and Investment Promotion" and "Agricultural Trade" – is the key implementer of the project "Value Chains for Development Policy – Challenges for Trade Policy and the Promotion of Economic Development". This project, funded by the Federal Ministry for Economic Cooperation and Development (BMZ), has three objectives (ALBERT *et al.*, 2003:1):

- German development projects and programmes with (potential) value chain components use the studies (like the present one) and other outputs of the project;
- Broad dissemination is achieved and the poverty reduction potentials of value chains are accessible to an interested public without expert knowledge;
- BMZ has advisory expertise regarding the significance, constraints and opportunities of value chain improvements for poverty reduction.

Currently, the Sectoral Project Agricultural Trade is preparing a manual, called ValueLinks, which serves as a practical guideline for value chain promotion programmes with regard to planning, analysis, and implementation of the value chain approach.

At present, the Sectoral Project and MOAP are interested in looking more deeply into development policy as well as practical issues related to the value chain approach.

MoFA and BMZ

MoFA is in charge of development and growth of agriculture in Ghana, with the exception of the cocoa, coffee, and forestry sectors. Its basic functions include the formulation of appropriate agricultural policies, planning and co-ordination, and monitoring and evaluation within the overall national economic development. MoFA seeks to improve agricultural productivity, incomes and employment opportunities, contribute effectively to balance of payments, establish effective agriculture industry linkages, and promote balanced regional development. MoFA's activities are guided by the national Food and Agriculture Sector Development Policy (FASDEP), which is currently being reviewed.

BMZ formulates Germany's development policy which has the grab of reducing poverty, promoting equitable forms of globalisation, and building peace. The ministry supports poverty eradication, combating hunger and illnesses, education for everyone, democracy and peace, realising human rights and gender equality, protecting the environment and natural resources. The German federal government aligns its development cooperation to the Millennium Development Goals. BMZ is currently in a process of reshaping bilateral development cooperation with sub-Saharan Africa. "Agribusiness promotion", one of the so-called "profile-building blocks" of this cooperation, aims at the realisation of pro-poor growth through the integration of underfinanced and inefficient agricultural production and processing with development potential in national and international markets. The target groups are small and medium-sized farms and processing plants which possess potentials for market integration, as well as interlinked trade and service provision (BMZ, 2006a).

1.4 Problem analysis

The study team identified limited knowledge about the poverty impact of value chains in domestic and export markets and methods required to assess this impact as core problems to be addressed. Several causes underlie this constraint such as unreliable data, inadequate attention to consumer markets and insufficient monitoring and evaluation. Moreover, the value chain approach, in its present form, is relatively new to development cooperation and hence there is a corresponding lack of expertise among development practitioners. These factors may lead to a selection of inappropriate value chain promotion instruments that do not address the needs of the poor. As a result, there is a danger of keeping marginalised farmers out of value chains by focussing solely on growth and income-related aspects, while neglecting their social and food security needs.

1.5 Objectives of the study

The study has three **purposes**:

1) MOAP (and other similar projects) are provided with an assessment of the hypotheses (see below) concerning the poverty orientation of value chains.
2) The GTZ Sectoral Project Agricultural Trade integrates the findings and recommendations of the study in their further conceptual development of the value chain approach as well as in their capacity building and knowledge dissemination activities.
3) BMZ and MoFA embed the recommendations of the study in their policy formulation on agribusiness and trade promotion.

In pursuing these objectives, the study is supposed to contribute to the **overall goal** of generating more income and food security for the poor by promoting value chains in a pro-poor manner.

The study team has examined the following working hypotheses:

1) Processing for domestic markets generates more employment and value than the export of fresh produce.
2) Price levels of domestic and export markets do not clearly favour exports, especially if costs of market entry are taken into account.
3) Increasing market orientation and commercialisation improves social and food security of small and marginal farmers.

It is assumed that **improvements in the relations of local producers to markets lead to increased in-country value addition, and hence contribute to poverty reduction**. Hereby, the main focus is currently on export markets because they are thought to offer higher prices, and therefore generate more profit. The study team has investigated this overarching development hypothesis along the value chains of selected commodities, which are introduced in the following.

1.6 Selected commodities

MOAP selected three commodities as case studies for this survey. One commodity was selected from each the three major groups of agricultural produce, namely fruits and vegetables, staple crops, and livestock.

Mango: Over the past years, Ghana has significantly increased its exports of fruits, especially pineapple, and puts a lot of hope in this sector. Mango – fresh as well as processed (**pulp** and its derivates) – not only has a strong export component (implying high quality demands) but also a significant domestic market. Current production volumes, however, are still small.

Cassava: This root is a major staple crop in large parts of the country. It is not only marketed as fresh tuber on domestic markets but also processed to ***gari*** (roasted and fermented cassava meal), which has a small potential for export. Cassava/*gari* production and marketing is currently not promoted by MOAP.

Grasscutter: Captive rearing of grasscutter has, in recent times, attracted the attention of farmers, development service providers and decision makers in Ghana. It promises to be a potential source of income and employment, especially for rural people. Grasscutter meat is considered a delicacy not only by Ghanaian consumers but also in many neighbouring countries in West Africa.

1.7 Scope and limitations of the study

The study is expected to show the conditions under which a more market-oriented agricultural production can contribute to poverty reduction. Through comparison of longer and more complex value chains that involve several steps and actors (e.g. mango pulp, *gari*, processed meat) with those that are shorter and/or less complex (e.g. fresh fruits, fresh cassava), the study is intended to reach important conclusions with respect to more targeted support measures in the context of technical cooperation. This will be helpful not only for MOAP but also for similar projects elsewhere. The study also seeks to contribute to the political debate in Ghana and Germany on pro-poor growth.

During the field phase, the study team faced the following constraints:

- In the case of the mango value chain, it turned out that the industry is still in its infant stage (most of the farmers have just recently started harvesting), which made it impossible to investigate into the poverty effects of a developed industry. Due to the immature market and the perennial nature of mango, poverty effects had to be projected as future scenarios based on the data collected.
- In the grasscutter value chain, almost all the stakeholders interviewed have already cooperated with MOAP. Consequently, there is a danger of the interviewees being biased in favour of MOAP.
- The absence of processing depth and the small number of poor producers in the mango and grasscutter value chain made it difficult to elaborate the potentials and constraints of the intensification of processing stages and to assess an increase of income of resource-poor producers.
- A lot of time had to be invested at the beginning of the field phase to locate *gari* exporters and processors as their addresses are not documented. Secondly, due to resource constraints related to the availability of reliable cooperation partners and time constraints, the study team had to leave out two major areas of *gari* processing and marketing in Ghana, namely Brong Ahafo Region (BAR) and Volta Region.
- A major, general limitation was that reliable data on macro-economic developments, market volumes, etc. were hardly available.

2 Study concept and methodology

To explore the poverty orientation of value chains, the study team assessed the three value chains with a poverty focus. The underlying assumptions are that

- Resource-poor producers and (potential) processors have not chosen to be largely cut-off from existing markets;
- Rural and urban poor are desperately seeking secure and reasonably paid jobs in the production, processing and distribution of agricultural commodities;
- The poor can in fact benefit from increasing market orientation and commercialisation of agriculture; and that
- Value chain promotion can be designed in a poverty-oriented manner.

2.1 The value chain approach

The basic idea of a value chain is that products go through a sequence of activities from raw material to the final product (see also ALBERT *et al*., 2003:1). At each stage in the chain, value is added to the commodity.

For development agencies, questions of importance are (STAMM, 2004:15):

- Under which conditions can local actors (including small and medium enterprises and cooperatives) from developing countries contribute to domestic and international value chains?
- How can they realise a relevant share of the value added?
- How can they draw non-tangible benefits (technological and organisational learning) from integration in value chains?

In recent years, the need to connect producers to markets has led to an understanding that it is necessary to verify and analyse markets before engaging in upgrading activities with value chain operators. Thus, the value chain approach starts from an understanding of the consumer demand and works its way back through distribution channels to the different stages of production, processing and marketing (GTZ, 2006).

The value chain approach seeks to identify long-term solutions to reduce the vulnerability of developing countries to fluctuating world market prices or trade shocks. It does not just focus on adding value to existing traditional commodity exports (in other words, diversifying the same product), but also on promoting alternative products such as fruits, often referred to as non-traditional exports (NTE). Such an approach is widely accepted today as a value chain promotion strategy.

Another characteristic of the approach is that it does not solely concentrate on functional dimensions such as supplying appropriate inputs, or applying good agricultural, processing, handling and distribution practices. It emphasises the importance of institutional arrangements, or rather governance issues, along the value chains that link and coordinate producers, processors and distributors of a certain product (SPRINGER-HEINZE, 2005). According to GEREFFI *et al.* (1994:97), this aspect covers "authority and power relationships that determine how financial, material and human resources are allocated and flow within the chain".

2.2 Conceptual framework for value chain analysis with a poverty focus

Adapting the GTZ value chain concept and terminology, the study team designed a model (see Figure 1) that encompasses four levels, in which relevant survey topics for the poverty analysis of a value chain are embedded.

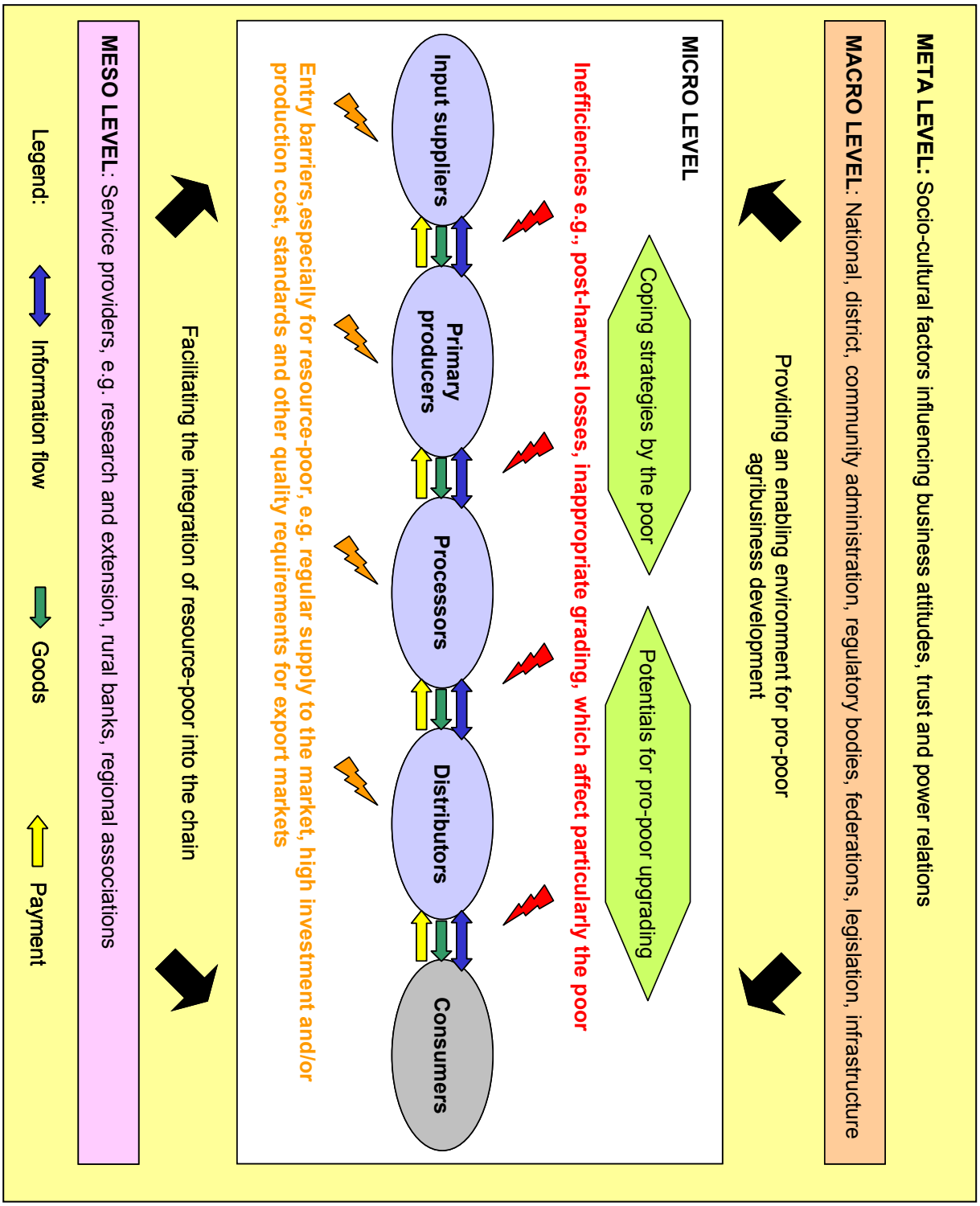
At the micro level, **value chain operators** (poor/non-poor, men/women) perform basic functions in the value chain, be it as input suppliers, primary producers, processors or distributors (wholesalers, retailers, intermediaries, transporters, exporters). They may employ wage labourers (poor/non-poor, men/women). Goods progress through the chain (e.g. the provision of specific inputs) to the final consumer (poor/non-poor), whereas the payments for the products flow in the opposite direction. In addition, there is a flow of information on prices, quality standards etc., which is not necessarily symmetrically distributed among the value chain operators, and may disadvantage particularly the poor.

At the meso level one finds public and private **service providers** e.g. regional associations, rural banks, agricultural government institutions, local civil society organisations. They offer services such as research, credit, extension, training, and market information, which may be tailored to the needs and constraints of the poor. Other value chain actors at the macro level such as national, district, community administration, policymakers, regulatory bodies, federations of associations provide **enabling framework conditions** for businesses that may be pro-poor. This may relate to legislation, standards, infrastructure etc.

Finally, the meta level describes **socio-cultural factors** facilitating or hindering business linkages, business attitudes and trust among the value chain actors. On the basis of this conceptual framework, the team developed five survey topics from which guiding survey questions and hypotheses were derived (see Table 1).

The first survey topic investigates **framework conditions for pro-poor value chain promotion**. It mainly deals with causes and effects of existing entry barriers to markets for (potential) value chain operators.

Figure 1: Conceptual framework



The second survey topic addresses **governance** of the selected value chains. The study team supposed that a value chain is not just governed by the interplay of supply and demand, but also by relationships. Thus, the level of trust, the degree of organisation as well as the flow of knowledge and information between value chain operators are taken into account. This influences the value chain operators' bargaining power, protection from competition etc.

Table 1: Selected survey topics, key survey questions and hypotheses

Survey topics	Key survey questions and hypotheses
1) Framework conditions for agri-business promotion	What is the market for the commodity like? What are the existing entry barriers to markets for (potential) value chain operators? *Hypothesis:* *Ghana has site and cost advantages against regional and international competitors*
2) Governance of the selected value chains	How are trust and power relations among different value chain operators, to what degree are they organised, and how does this affect the value chain? Where are knowledge and information concentrated within the value chain? *Hypothesis:* *There is widespread mistrust between small producers and local traders*
3) Distribution of benefits within the value chain	Which (groups of) operators benefit to what extent from value addition within the value chain? Where are local producers and processors of the selected commodities concentrated, and why? *Hypothesis:* *The share of producers' profit in the overall profit generated within the chain is reasonable*
4) Poverty effects of value chain promotion	How do existing support institutions facilitate the integration of small and marginal farmers into the value chains? What are the (potential) positive and negative effects of promotion of the respective value chains? How does increasing market integration affect stability/vulnerability at the household level? *Hypothesis:* *Additional cash income through marketing may not be used for food and nutrition security improvements (e.g. due to gender relations)*
5) Potentials for making the value chains more pro-poor	How do inefficiencies of the selected value chains affect the poor and how could they be remedied? How could the selected value chains be upgraded in terms of product, process, function and value chain to make them more poverty-oriented? *Hypothesis:* *Lack of contracts and their reinforcement lead to inefficiencies*

The third survey topic deals with the **distribution of benefits** with focus on profits along the chain: Who is involved in the chain? Who retains most of the profit generated? What kind of employment is generated and for whom?

Current and potential **poverty effects of value chain promotion** are addressed in survey topic four. Here the key question is how increasing market integration and commercialisation affect income and stability/vulnerability at household level. What wider poverty impacts can be expected (due to price changes, environmental and health improvements, etc.)? Another question is how existing support institutions and mechanisms facilitate the integration of poor in the value chains.

Potentials for pro-poor up-grading of value chains lead to the fifth survey topic. How do inefficiencies (e.g. post-harvest losses, inappropriate grading) affect the poor and how could they be tackled, i.e. what coping strategies exist? How could the selected value chains be upgraded in order to make them more poverty-oriented?

2.3 The study design

In conceptualising the survey, the study team was inspired by existing guidelines on value chain analysis (in particular KAPLINSKY and MORRIS, 2002; HUMPHREY, 2005; MOAP, 2005c) and by the concept of action and decision-oriented research (ADR) (SLE, 2006). The absence of handbooks on how to analyse the poverty orientation of value chains on the one hand, and the diversity of actors who expressed keen interest in the study findings on the other, necessitated a rather flexible methodological approach. It also required seeking interim feedback on the study design itself, the preliminary findings, and the conclusions and recommendations (see Table 2).

2.4 Survey areas and respondents

For their analysis of export and domestic value chains, the study team used slightly different approaches in selecting survey areas and respondents:

- With regard to export chains (mango, *gari*), the team contacted exporters (e.g. in Greater Accra) and worked their way back to intermediates, primary producers and the input suppliers (e.g. in Eastern and Volta Region). In many cases, however, exporters turned out to be operating their own farms.
- To analyse domestic chains, the team selected major centres of production, processing and marketing of the respective commodity (e.g. BAR and Northern Region for mango, two districts in Ashanti Region for *gari*, Greater Accra and BAR for grasscutter meat). Within each region, certain districts, communities and respondents were selected by a mix of purposive, quota, and random sampling, depending on feasibility and resource constraints.

Key respondents were value chain operators, poor who are not part of the respective chain, service providers, representatives of regulatory bodies, government ministries, federations, development agencies, and external resource persons (e.g. researchers, village authorities).

Table 2: Procedure and time frame of the study

Preparatory Phase	Review of the Terms of Reference: problem analysis, user analysis	BERLIN (12/06-21/07/06)
	Framing of study objectives and outputs	
	Review of literature on pro-poor growth, value chain approaches and analyses, study of Ghana country papers, consultation of resource persons	
	Drafting of value chain maps of the selected commodities (mango, *gari*, grasscutter): identification of value chain actors and their key functions	
	Formulation of survey topics, survey questions and hypotheses, identification of survey units and respondents, drafting of data collection methods	
	Presentations of the study design (SLE, GTZ, MOAP / MoFA), incorporation of feedback	
	Team-building with Ghanaian fellow researchers, formation of sub-teams	GHANA (23/07-21/10/06)
	Detailed planning of data collection: development and pre-test of questionnaires and other tools, interview guidelines, workshop formats	
Field Phase	Data collection: interviews with value chain actors, key informants and other resource persons, farm and market visits, group discussions with value chain operators, value chain stakeholder meetings and workshops, analysis of secondary data	
	Interim evaluation of findings (within the team and with stakeholders)	
Report Phase	Analysis of survey results, summary and presentation/ discussion of preliminary findings, incorporation of feedback	
	Drafting of the study report, dissemination to study users and other interested parties, additional data collection (if required)	
	Presentations and discussions of survey findings and recommendations, incorporation of feedback	
	Finalisation and dissemination of the report	BERLIN. (-12/06)

2.5 Data collection methods

Individual and group **interviews** were semi-structured in nature, allowing for dialogue between interviewer and interviewee(s). Careful rapport-building was particularly important in interviews with traders, as they tend to hide information on their business transactions and profit calculations from outsiders.

The **analysis of secondary data** turned out to be extremely helpful in order not to duplicate efforts of information collection. For instance, the comprehensive study by ASUMING-BREMPONG *et al.* (2004) on different wealth categories of small farmers in Ghana and farmers' responses to agricultural modernisation policies saved the study team from conducting cumbersome wealth ranking or social mapping exercises in the communities in order to identify certain (groups of) poor.

Top left: *gari* stakeholder workshop; top right: interview with a *gari* trader
Bottom left: interview with a grasscutter farmer; bottom right: workshop on study findings

In workshops and larger stakeholder meetings, the team employed various **participatory tools** like brainstorming, mapping, scoring, etc. to quickly obtain relevant information, for example on distribution of benefits along the chain, information asymmetries, or inefficiencies.

3 Results

Ghana's most important economic sector is agriculture. It employs more than half of the workforce and contributes around 30-40% to the GDP (EIU, 2004:24). While maize, roots and tubers, rice, fish and meat are basic food commodities produced and consumed domestically, cocoa is the main agricultural contribution to export earnings. However, over the past years exports of horticultural crops such as pine-apple have increased sharply, and the Ghanaian Growth and Poverty Reduction Strategy (GPRS II) as well as FASDEP emphasise the role of non-traditional exports for growth and poverty reduction (GoG, 2003; MoFA, 2002).

Agricultural production in Ghana is characterised by smallholder farming. Large (commercial) farms account for probably less than 2% of all farms in the country. With reference to ASUMING-BREMPONG *et al.* (2004) and substantiated by own survey findings, one may distinguish at least four different groups of small-scale farmers:

- Small commercial farmers (probably less than 3% of all farmers): They have profit maximisation objectives, are better educated, have assets, take production and marketing risks, have savings, attract credit, employ modern productivity enhancing inputs, and have political and business connections.
- Semi-commercial farmers (around 18% of all farmers): They have relatively larger farms (6-7 acres on average), tend to have mainly profit maximisation goals in their agricultural activities, may be engaged in other income-generating activities, have higher levels of assets including vehicles, large houses, and machinery, than subsistence farmers, employ hired labour for their farming activities, are able to feed their families well, and can afford to send their children to good schools.
- "Non-poor complex diverse risk-prone farmers" (around 42% of all farmers): They have small farms (around 5 acres on average), have diverse means of livelihood, may be involved in petty trading and have own means of transport such as bicycles. They sometimes have regular incomes outside the farm, can invest, and send their children to schools.
- "Poor complex diverse risk-prone farmers" (around 36% of all farmers): They have relatively small farm sizes (less than 4 acres on average), their assets are mainly land and family labour (but with low productivity), they may be share-croppers, may not be able to adequately feed their families all year round, rely heavily on staple crops for their nutrition, may hire on as labourers for other farmers, some of them become welfare-dependent during lean seasons, they are usually risk averse and may not be able to send all their children to school. In this study, they are referred to as **resource-poor farmers**.

Resource-poor farmers are not an homogenous group either. In their food security and vulnerability analysis of five regions in Ghana, WFP (2004:1) emphasises that not all poor are food insecure, and that “chronically poor and the transient” need to be distinguished separately, as they have different needs and constraints. There are poor households with a very high vulnerability to food insecurity and/or economic shocks, characterised for instance by low meal frequency and high prevalence of maternal malnutrition. However, within this group there are also households with typical diet but low food diversity, or people with limited access to food but higher diet diversity. In the group of poor households that are vulnerable to seasonal changes in availability and access to food, nearly half are identified as having a typical diet but low food diversity whereas 30% show even good or very good food consumption patterns (WFP, 2004:38-39).

3.1 Regional concentration of the commodities

Figure 2 displays the current regional distribution and agglomeration of the three commodities under review in Ghana.

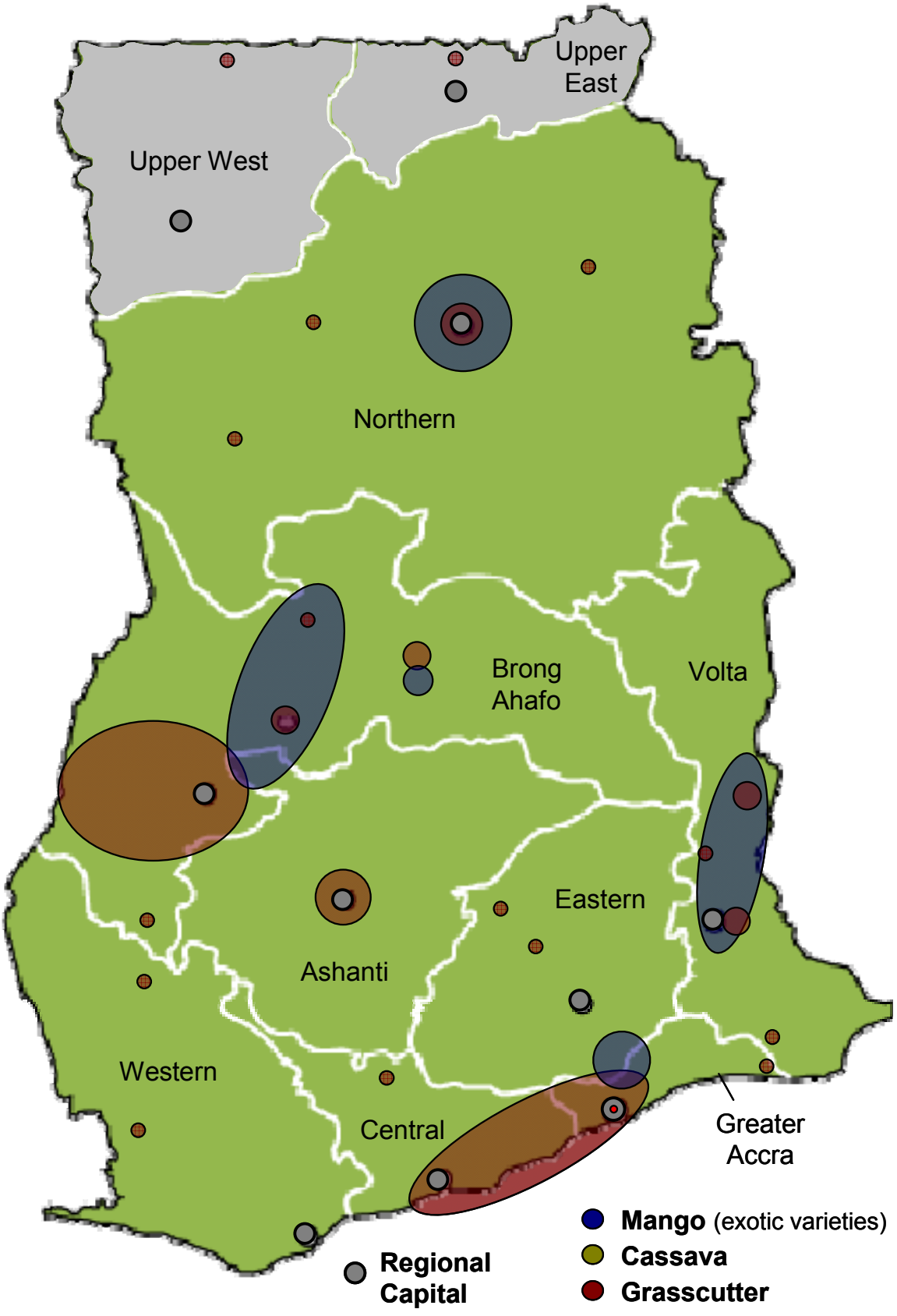
Mango develops well under semi-humid to semi-arid conditions. Therefore, the main mango producing regions are the Coastal, Transitional, and Northern Savannah Zones (Pers.Com: SRAHA; ATTASI, 2006).

- In the **Southern Belt** (Greater Accra, Eastern and Volta Region), large businesses with huge acreages operate as producers and exporters at the same time. Small farmers are mostly organised in associations as it is very difficult to enter the business individually (capital-intensive). The associations are currently setting up the necessary network with their buyers.
- In the **Transitional Belt** (BAR and Ashanti Region), mango farmers are either individual farmers or they are organised in associations. However, the majority of associations were formed recently and the services rendered to their members are still not prevailing.
- In the **Northern Belt** (Northern Region), the Integrated Tamale Fruit Company (ITFC) created an outgrower scheme allowing every participating farmer to grow one acre of mango with input support on a credit basis. Due to the ITFC involvement in the mango sector, small farmers are able to grow mangoes in addition to their other farming activities.

Producers of exotic mango varieties can be found close to roads and market centres and are concentrated in areas in the South supported by GTZ and USAID. Few processing units producing fruit salad, dried mangoes and juice can be found in the Southern Belt (Greater Accra), while there is only one pulp processing company located in the Transitional Belt. They have processed mango on a trial basis and are not yet exporting. The distribution of processors is, on the one hand due to the nec-

essary infrastructure for marketing and exports and on the other hand due to the proximity to their suppliers.

Figure 2: Regional concentration of the three commodities



Production of **cassava** is widely distributed throughout the country, with exception of the Upper-East and the Upper-West region. It is produced in small quantities by thousands and thousands of smallholder subsistence farmers scattered throughout the country. The main regions of cassava production in Ghana include Eastern, BAR, Ashanti and Central. The Eastern Region is the leading producer of cassava in Ghana both in terms of production and acreages cultivated. In 2001 alone, it contributed nearly a quarter of total cassava production in Ghana (NURAH and AHIALE, 2005).

Similarly, ***gari*** production is mainly a micro and small-scale business with thousands of households processing small quantities of *gari*, mainly for sale. The main regions of *gari* production are Volta, Eastern, Brong Ahafo and Ashanti. Techiman district in BAR represents one of the biggest *gari* markets in Ghana. In the Northern Region, the scope of *gari* processing is very limited due to low yields of cassava in the North.

For several reasons, **grasscutter rearing** is concentrated in the (peri-)urban areas of Accra, Kumasi, Cape Coast, Sunyani, Techiman, Tamale and Ho, in and around District centres, and much less in rural/remote areas and in the North of Ghana:

- Grasscutter rearing has long been supported by the GTZ, so that farmer associations are established in areas where the organisation is (or has been) active, such as BAR or Greater Accra.
- The prospect of comparatively high returns to high investments has attracted commercial farmers and other financially capable and business-minded citizens to the breeding of grasscutter, who are typically concentrated in and around towns and cities. In addition, development agencies are usually based in towns and cities and have started their support activities in their vicinity.
- The long dry season in the North makes constant supply of fodder to the animals difficult. Moreover, Ghanaians consider grasscutter a “Southern animal”.

3.2 Mango

3.2.1 The market

Internationally, India is by far the largest producer of mangoes, accounting for more than half the world’s production. Mexico and Brazil are the two major players when it comes to exports. The United States, the European Union, the Middle East and South-East Asia represent the major importing regions (PFID – FV, 2001).

The **regional, West African market** for mangoes is developing rapidly. Surrounding countries such as Burkina Faso, Mali and Ivory Coast are producing mango successfully and with high productivity on small-scale farms. Exports of mangoes from these countries range at about 11,000 tonnes per annum (Pers.Com: VOISARD, 2006). In comparison, Ghana’s mango industry is still in an infant stage. Its productivity is low and exports reached only about 270 tonnes in 2004 (MOAP, 2006).

On the **domestic market**, local mango varieties seem to play an important role. In recent years exotic varieties, especially Keitt and Kent, have gained significance as well. Although exotic varieties are suitable for export, part of the produce is sold on expanding domestic markets. Considering their increasing popularity and acceptance, it seems that exotic varieties fall in the range of Ghanaian consumer preferences.

Over recent years, world market prices for mangoes have been decreasing while exports and imports have experienced a remarkable growth. It is assumed that growth will increase further, but at declining growth rates on the European, the Middle East and the US markets (GALÁN SAÚCO, no date). However, the price elasticity of demand can be assumed to be still high.

As for now, prices for exotic mangoes are high in Ghana (about US$ 0.21 to 0.42 per fruit). As many producers have started with planting, it is assumed that prices will decrease drastically as soon as the harvest volumes rise. Demand for exotic varieties in the domestic market is increasing with falling prices which implies that the price elasticity of demand is also high, in this case.

The **competitiveness** of Ghanaian mangoes on the world markets is still low. Small quantities make it difficult to compete with large players such as Brazil, Mexico and Peru. In addition, Ghanaian producers find it hard to meet certain export quality standards, and sufficient quantities demanded by certain importers cannot be collected (Pers.Com: ATTASI, 2006).

Nevertheless, Ghana has some advantages over other mango exporting countries. One special feature of Ghana is **two harvests each year** in the Southern Belt. There is one major season lasting from May to August and a minor season from December to February. This may offer an opportunity for Ghana to supply the European market during times when competition is weaker, for instance during summer. However, in European summer time, mango has to compete with European fruits. Compared to Burkina Faso, Northern Ghana has a competitive advantage for the European market as harvesting starts two weeks earlier, which allows for gaining a certain market share (MOAP, 2005a).

Concerning exports to the European markets and the Middle East, interviewed stakeholders claimed that Ghana has a **geographical advantage** over Latin American countries, as distances are shorter. In addition, respondents stated that Ghana is not landlocked as compared to Burkina Faso or Mali, and it can draw on an existing and functioning infrastructure for pineapple exports such as transportation, logistics and networks, ports, suppliers of boxes and pallets, and set freight rates. Capacities as well as inputs which can boost the national mango industry have already been put in place.

Pineapple pack house that can be used for mango packaging

Recapitulating, there is an **international market ready for Ghana's mango produce**. However, the country's current share of exports is marginal due to the **infant stage of the industry** and high production costs. As trial shipments have proven, it is possible to achieve reasonable prices for the Ghanaian produce in target markets. However, production costs are 30-40% higher in West Africa than in Brazil or Peru (Pers.Com: MOSS; VOISARD, 2006).

3.2.2 Value chain operators and their functions

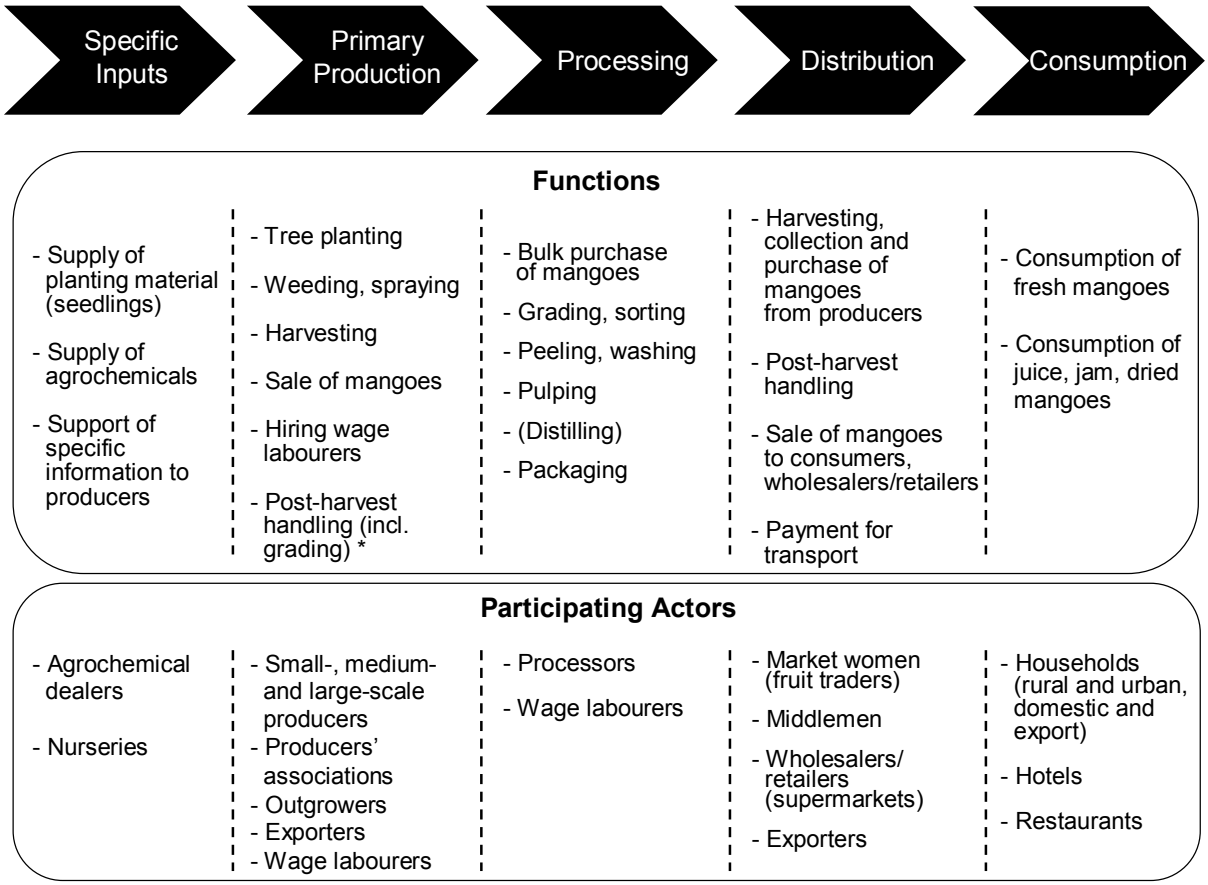
The participating actors and their most important functions at the different stages of the mango value chain are shown in Figure 3.

Input suppliers – nurseries and agrochemical dealers – provide producers with specific inputs such as seedlings, fertilisers, pesticides and herbicides needed for mango production. Nurseries are found in every major mango-producing region, however only in small numbers. Some big agrochemical dealers are located in Greater Accra (Dizengoff, Agrimat), while small dealers operate throughout the country. They sometimes offer information on the use of chemicals to producers.

Mango **producers** comprise small as well as medium and large commercial farmers. The latter are mostly exporters. The size of the different farm entities depends on the

location of production: the further North the smaller the farms. In Brong Ahafo and the Northern Region, there are larger numbers of small farmers, including resource-poor. However, virtually no mango producing resource-poor farmers could be identified.

Figure 3: Mango value chain operators and their functions



*especially in case of exporters

It is estimated that resource-poor farmers account for approximately 5% of the farmers involved in the business. They are mostly organised in associations or, in one case, in an outgrower scheme (see Box 1). Almost all farmers reported using hired labour, especially for weeding and harvesting activities.

The number of **processors** in the country is very limited. The few registered processing plants are large companies that employ wage labourers. One major market player located in Greater Accra (Blue Skies) produces fruit salad containing mangoes. Another company in Greater Accra (Ebenut) produces dried mangoes.

There is one pulp processing company, AfriqueLink, in Ghana which operates in Wenchi, BAR. It imports 80% of the raw material from Burkina Faso. The other 20% originate from ITFC and wild collectors, which implies that AfriqueLink uses local varieties for processing as well. In Burkina Faso, mango prices are much lower than in Ghana and a steady supply from Ghanaian producers cannot be guaranteed.

Box 1: Integrated Tamale Fruit Company (ITFC)

The **ITFC outgrower scheme** targets 2,000 small-scale farmers on a contract basis. To enter the outgrower scheme, farmers of a community have to organise themselves into a group of ten people and acquire ten acres of land (block farm). Here, each farmer is supposed to establish one acre of mangoes. Registration fee is one bag of maize. Then, farmers are **provided with inputs** for the first three years on a **credit basis** that amounts to approximately US$ 2,400. The loans are interest-free and from the fifth year onwards, 30% of the harvested produce will be subtracted to pay back the loan. ITFC intends to produce organically and to serve a niche market, which offers the prospect of paying relatively high prices to farmers, varying between US$ 0.60 and 0.80 per kg. Still, it has to be borne in mind that mangoes are a long-term investment with the return on investment and running costs expected to occur in the sixth year (for organic production and export marketing). According to ITFC, as mango production is not affected by any subsidy policy, it is competitive in export markets. They believe it is a market-driven system with the potential to alleviate poverty (MOAP, 2005a; Pers.Com: AMALIGO NYAABA, 2006).

The pulp is sold to secondary processors around Accra such as Milani Ltd. who further process the pulp into mango juice. However, as soon as the company can assure an adequate quantity and quality of pulp they intend to export the product as well (Pers.Com: ADU-GYAMFI, 2006).

Box 2: Small-scale processing of mango

In Accra, Kwame Nyamekie-Boamah has started operating a small processing business. He purchases mangoes and other fruits in regions where prices are low. He then supplies small processors around Accra with the fruits. They process juice on a household-based processing level and allow Mr. Nyamekje-Boamah to facilitate the sale of the juice. The customers are personally known and they trust in the quality of the produce. The juice has a short shelf-life, is filled in recycled water bottles and is not labelled.

Distributors include local traders (market women), wholesalers, retailers, and exporters. **Traders,** specialised only in mango trading, are not present in the domestic market in Ghana. Fruit traders include mango in their portfolio during mango season. They purchase mangoes by travelling from farm to farm, and sometimes they even harvest the fruits themselves. When the local season ends, they also look for mangoes in other town markets. Market women are responsible for transport to urban areas and pay for the related costs. They sell mangoes directly to the final consumer and in some cases to secondary intermediaries or middlemen.

Exporters usually own large mango farms. They are few in numbers and operate in the Southern Belt, while ITFC is the only exporter in the Northern Region. In (on-farm) pack houses, their fruits are bundled together with those harvested at other producers' farms, or with those acquired from associations. The mangoes are transported to Tema harbour where they are shipped to the target markets.

The majority of **consumers** buy local and exotic mango varieties from market women. Poor consumers collect local varieties on other people's land, if they consume them at all, as even these are too expensive for them to buy (Pers.Com: BONNEY, 2006).

3.2.3 Governance of the value chain

An assessment on the **distribution of profits along the value chain** suggests that producers gain about one quarter of the profit, input suppliers a third, whereas traders realise more than a third. It seems that their transactions with producers are not based on exploitative relationships, even though traders get a higher share of profit due to their stronger bargaining position.

Box 3: All functions in one hand – The Kristo Boase Monastery

Kristo Boase Monastery is run by monks who use their own inputs for growing mangoes (own seedlings, manure). They process the raw material into jam and schnapps, and sell the two products directly at the Monastery shop, mainly to tourists. The Monastery performs all the functions in the value chain, and therefore reaches a maximum of vertical integration retaining all the profit.

The study team could not verify whether producers selling directly to exporters realise a greater share of profit than those selling to domestic traders or processing plants. Apparently, having different buyers does not necessarily change the profit share of producers.

In organic mango production, producers (e.g. ITFC farmers) get a higher price per kilogramme of mangoes but it remains unclear whether this increases their total share of profit. However, in the case of ITFC, producers enjoy a non-monetary benefit of guaranteed sales.

Influence and importance of different value chain operators vary greatly, as do their perception of their respective roles in the chain. It becomes clear that the **degree of organisation** is the main factor that determines the ability to set prices. Producer associations for instance, help their members to obtain benefits that are normally not accessible to individuals:

- Most of the service providers assist only associations, e.g. with training.
- Access to information is generally easier for members, e.g. through the mutual exchange of knowledge on marketing and pricing of products.
- As members are buying in bulk, their bargaining power tends to be greater against input suppliers, hence leading to lower costs for inputs.
- Moreover, association members improve their negotiation position against buyers, which also helps them to some extent to determine and set sales prices.

Generally speaking, being a member of an association strengthens the position of the individual farmer. Associations have been successfully established in all mango producing regions visited. Between mango value chain operators, however, there is widespread **mistrust**, as interviews have revealed:

- Input suppliers criticised the high default rate of producers when they sell to them on credit. Producers reported having been provided with inappropriate seedlings (other varieties than demanded), out-dated or adulterated agrochemicals, or wrong advice from agrochemical dealers concerning the application.
- Producers stated that they get paid poorly or sometimes even not at all (high default rate of traders), and that prices are inconsistent. Traders complained about the quality of mangoes and the absence of standards.
- Producers feel betrayed by processors because they expect them to pay the same price as some traders do. As a consequence, they prefer not to sell at all, and they remain unaware of the potential benefits of having a constant buyer. Farmers do not take into consideration processors' cost calculations that influence the price they offer for mangoes. Processors assume farmers to be unreliable as they do not supply the quantity and quality agreed beforehand, and they demand too high prices.
- Producers complain that wage labourers breach contracts. They do not come to work or they charge more than agreed upon.

The **information flow** between and among value chain operators is insufficient or even non-existing, which contributes to the prevailing mutual mistrust. Although different support institutions undertake efforts to provide information, as for instance on pest and disease management, chemical use, certification and standards (EurepGAP), information seems to be scarce and outdated, and not available to individual farmers. Concerning marketing, producers have less information than other value chain operators.

3.2.4 Inefficiencies

Concerning input supplies, problems included **agrochemical products** which were past their use-by date, or poorly labelled, including wrong or impracticable indication of quantities. Additionally, most of the chemicals sold are not exclusively for mangoes. Apart from that, input suppliers mentioned that they are not supplied by importers regularly. In **mango nursery operations**, technical issues such as improper grafting techniques, disease infestation, and the absence of variety selection, sorting and separation appear to be major weaknesses.

At the producer level, **poor agricultural practices** dominate the picture. Producers manage newly planted trees or established orchards inadequately, if at all. Trees are not pruned correctly or not at all. Many producers are not sufficiently committed to tree maintenance especially when the plantation is still young and does not yet provide income. They often use pesticides in an inadequate manner as there is relatively low awareness of the right type, use and application of chemicals, let alone knowl-

edge about integrated pest management, organic farming and other alternative technologies. In particular, poor weeding practices (excessive use of herbicides, neglected opportunities of small ruminant use for weeding) lead to poor efficiency and productivity. Bad harvesting practices cause losses of mature fruits.

Post-harvest losses arise due to **poor handling** during transport, inappropriate packaging, and bad quality of the packaging material. Inadequate storage, pests and diseases, and untimely delivery account for losses, too.

Inefficient marketing practices lead to high transaction costs caused by insufficient coordination. This is especially the case when traders are not aware of reliable and near-by sources of mangoes.

3.2.5 Entry barriers

Farmers and processors face two main entry barriers to the mango market, namely **high cost of investment and maintenance**, and secondly, **standards and other product requirements** for exports. Although these entry barriers apply to all farmers and processors in the three mango producing regions, the degree to which they affect them varies.

Large-scale commercial farmers in the Southern Belt face high initial investment costs for the establishment of large-acreage plantations, pack house facilities, and transport mechanisms. Many of them are already exporting pineapples and can benefit from existing infrastructure. However, exporters stated that their highest costs are related to the application of chemicals and employment of wage labour. Costs for maintenance of one acre of exotic mango varieties are between US$ 315 and 630 per year in the Southern Belt (Pers.Com: KROHNE, 2006). These costs are relatively high, compared to the Northern Region where costs of labour are lower and fewer implements are needed due to more favourable climatic conditions (OICI-PFID: 2004:22).

Small-scale farmers in BAR stated that it is very difficult for them to finance the investment for land preparation and purchase of seedlings. Some farmers sought assistance from development agencies like the Adventist Development and Relief Agency International (ADRA) that provides mango seedlings on a credit basis (for support institutions, see Annex 2, page 67). In contrast to the Southern Belt, where the mango industry is more developed, farmers are concerned with the cost of investment rather than of maintenance. They seem to be not yet aware of future maintenance costs.

In the Northern Region, a large number of small and even resource-poor farmers could enter into mango production by becoming members of the ITFC outgrower scheme. This scheme covers investment and maintenance costs for participating

farmers by providing them with seedlings and inputs on a long-term credit basis (see Box 1 on page 21).

Poor access to information and know-how on makes it difficult for value chain operators to meet **standards and other product requirements**. The main standards for the European market apply to all horticultural imports to the European Union (EurepGAP, 2004). About 200 criteria (major and minor musts) have to be fulfilled in the areas of Good Agricultural Practices (GAP), food safety, environmental protection, occupational health, safety, and welfare. Producers found it particularly difficult to comply with standards such as colour and spotlessness of the fruit, a maximum weight of 600-800 grams per fruit, freedom from disease, and physical injury, maximum residue levels (MRL) for pesticides, etc.

Many exporters in the Southern Belt are organised in the Papaya and Mango Producers and Exporters Association of Ghana (PAMPEAG) in Accra. But most of them export through Sea-Freight Pineapple Exporters of Ghana (SPEG) and the Horticultural Association of Ghana (HAG). PAMPEAG provides its members with information and training concerning the standards. But many of them still have problems in reaching export quality. Small-scale producers or resource-poor farmers face even more difficulties in meeting the required standards for exports. Especially in the Middle and the Northern Belt, resource-poor farmers require assistance to learn about GAPs and standards.

The **distance to markets and poor infrastructure** also pose a problem for farmers in remote areas, especially in the North. The distance from the Volta Region to Accra is also a constraint. Farmers who are not able to produce export quality also stated that they face problems in marketing their produce on domestic markets. They are unaware about buyers and see their best future marketing possibility in selling to processing plants which, however, are yet to be established. Farmers in BAR, too fear marketing problems once they start harvesting, as they had bad experience with marketing cashew nuts, which were promoted in the past.

A main constraint at the level of processors is the **access to raw material.** A regular supply of fresh mangoes at adequate price and quality was mentioned to be a key problem area (Pers.Com: ADU-GYAMFI, 2006).

3.2.6 Poverty effects

The prospect of poverty reduction through mango production is highest in terms of employment creation in production, processing and distribution. Linking resource-poor farmers directly to the market seems extremely difficult. Consequently, most of the current farmers of exotic varieties (probably 95%) belong to the large group of farmers with access to resources. However, the number of resource-poor farmers is thought to be increasing among new mango farmers (Pers.Com: OWUSU, 2006).

A large-scale mango farm near Tamale.

As a direct result of high investment and maintenance costs, mango farmers experience a **negative cash flow during the first years** of mango production. Returns on investment and running costs materialise only after about 4-8 years. Unless resource-poor farmers start simultaneously with other income-generating activities (e.g. intercropping with maize), or are enabled to reduce their expenses (e.g. through pre-financing by support institutions), this may have negative impacts on their income and food security.

However, once the trees bear fruit, farmers will have an additional source of **cash income**, especially during the lean season when other income opportunities are rare, particularly in the Transitional and the Northern Belt. The additional income could reduce resource-poor farmers' vulnerability to seasonal food insecurity. Interviewees stated that they use the supplementary cash for educational purposes (Pers.Com: EFFA NIMOH, 2006).

Few direct benefits can be expected for the poor in the area of input supply (e.g. nursery operation), processing and distribution as these functions require skills and capital investments. It is doubtful whether poor women could start micro-processing (e.g. juice production) or become domestic traders of exotic mangoes.

On-farm employment for the poor, including women, is the main indirect benefit of mango production. However, this work is mostly seasonal with an average wage of about US$ 1.70 per day. Women are mainly employed during the harvesting period for mango picking and packaging. In the Southern Belt, (male) workers are employed permanently on larger farms. Presumably, a 20 acres farm would create employment for approximately 3 permanent and 5 casual labourers (in case of block farms) (Pers. Com: KROHNE, 2006).

Provided a fully developed mango industry, employment effects for the poor can also be expected in processing, distribution, trade and logistics. Especially in post-harvest handling, women have good employment opportunities e.g. in sorting, washing, packing and labelling. Employment creation in the transport sector should also not be underestimated (Pers.Com: VOISARD, 2006).

The employment effects for semi-skilled or skilled labour could be high in the input supply sector because a comprehensive export and logistics infrastructure is needed, for instance carpenters for producing pallets (Pers.Com: MOSS, 2006).

3.2.7 Potential for making the value chain more pro-poor

For resource-poor farmers, it is essential to start with small acreages or few trees. This allows for a **smooth entry** and might help them to cope with a negative cash flow in the beginning. After the first harvest, farmers could use some of their additional income to expand the farm gradually. Moreover, farmers could plant varieties with different maturation periods so that they would be able to harvest exotic varieties over several months in a year. However, it seems that for the resource-poor, mango farming can only be an additional cash crop alongside subsistence farming.

The **integration of the poor** into the mango value chain requires extra efforts. Special credit facilities (in kind) are crucial to facilitate their entry into the business. A possible approach could be a contract-based relationship that offers training and inputs (on credit), for instance an outgrower scheme (see Glossary). Resource-poor farmers should not be dragged into mango farming without prior information about the implications, i.e. intensity of maintenance, capital investment, period of returns etc.

The production of exotic varieties requires know-how on the treatment of pests and diseases, and quality standards. Resource-poor farmers are not able to acquire this knowledge on their own. Moreover, it will be difficult for them to sell their produce once there is a glut of exotic varieties on the market. Therefore, it is essential to **form associations or farmers' groups** that include the resource-poor to enable them to receive training or other forms of support by development agencies. Associations can also play an important role in marketing.

In order to reduce the maintenance costs for resource-poor farmers, it is suggested to explore more into **organic mango farming**, especially in the dry North. Experience from other countries shows that labour-intensive organic farming is more suitable for resource-poor farmers (see e.g. EL-HAGE SCIALABBA and HATTAM, 2002).

Many interview partners underlined the importance of **processing facilities** for mangoes. Especially for the resource-poor, it will be more appropriate to deliver their produce to domestic markets instead of applying for costly certification for export markets. All the stakeholders interviewed agreed that there is an increasing domestic demand for processed mangoes, especially for pulp for juice production.

The focus of pro-poor interventions for mango farmers could be in the North of Ghana. The Northern Belt belongs to the poorest regions in the country and the semi-arid climate favours the region for mango production due to the lower pressure of pests and diseases than in the more humid zones of Southern Ghana.

The mango market in Ghana is not mature and prices for exotic mangoes on domestic markets are high. Experience from neighbouring countries shows that **prices on the domestic markets will decline** as soon as the market develops (Pers.Com: VOISARD, 2006). A level of equilibrium could be reached within 5-6 years. This implies that those who want to enter the mango industry (resource-poor farmers as well as investors) should not base their calculations on the current high prices for exotic mangoes but rather on those prices of other countries with mature mango industries. In order to keep the mango business profitable at lower prices, productivity has to be increased. This is possible, as the experience from Mali shows (see Box 4). There, smallholder farmers have produced more effectively and efficiently than large-scale producers due to crop diversification and the use of family labour (Pers.Com: VOISARD, 2006).

Box 4: Case study - Mango sector in Mali (Sikasso)

Sikasso in Mali is a mango producing area. Until recently, the mango sector was not well developed. A pilot operation was implemented with support of the World Bank in order to export mangoes to Europe. The project put in place an **efficient supply chain** managed by a non-profit agency and private business investors. The set-up of **multimodal shipping** as an innovative system links the Malian production to the European market by road, sail and sea. The multimodal system is based on the conditioning of the product at its point of origin with no modification before its final arrival.
Mali has a **large share of smallholders** in production. An extension service was put in place enable producers to get acquainted with more efficient farming practices. The project assisted small growers in developing an efficient supply chain and facilitated the creation of a joint venture with an Ivorian private exporter. Because of an increase in production of mangoes, export volumes and farm gate prices, the producers benefited from a significant **increase in their revenues**. The operation led to the **creation of employment** in diversified sectors of the mango supply chain, e.g. as pack house personnel. This case demonstrates that smallholder farmers can be successfully involved in mango production and that such investments can be profitable (DANIELOU *et al.*, 2003; Pers.Com: VOISARD, 2006).

3.3 Gari

3.3.1 The market

Cassava represents a major food crop in Africa where it provides a livelihood for millions of smallholders living in humid, sub-humid and marginal lands of the continent. Although it is cultivated largely as a smallholder crop, it can be grown on a commercial basis for industrial uses in the overseas market. In developed countries, cassava is mainly imported to manufacture animal feed and starch. For instance, Thailand grows cassava primarily for export to European markets for animal feed manufacture. In Africa, about 70% of cassava is produced for human consumption (CIAT, 2002). In West Africa, cassava is mainly consumed as *gari*. This accounts for about 70% of cassava consumption in Nigeria, 40% in Ghana and 30% in the Ivory Coast (DOROSH, 1989). Although *fufu* represents the main cassava food product in Ghana, there is a high demand for *gari* on the **domestic market**. This demand is attributed primarily to institutional buyers, such as secondary schools, prisons, hospitals, the army etc. On the other hand, individuals, especially in urban but also in rural areas, seem to have low preferences for *gari* consumption. However, demand for *gari* in the domestic market is expected to increase with population growth. Opportunities for **regional** *gari* export from Ghana are very limited. This is because other countries in the region produce *gari* themselves, and Ghanaian *gari* does not seem to possess any competitive advantages (price, quality, taste, colour, texture), when compared to *gari* from other countries.

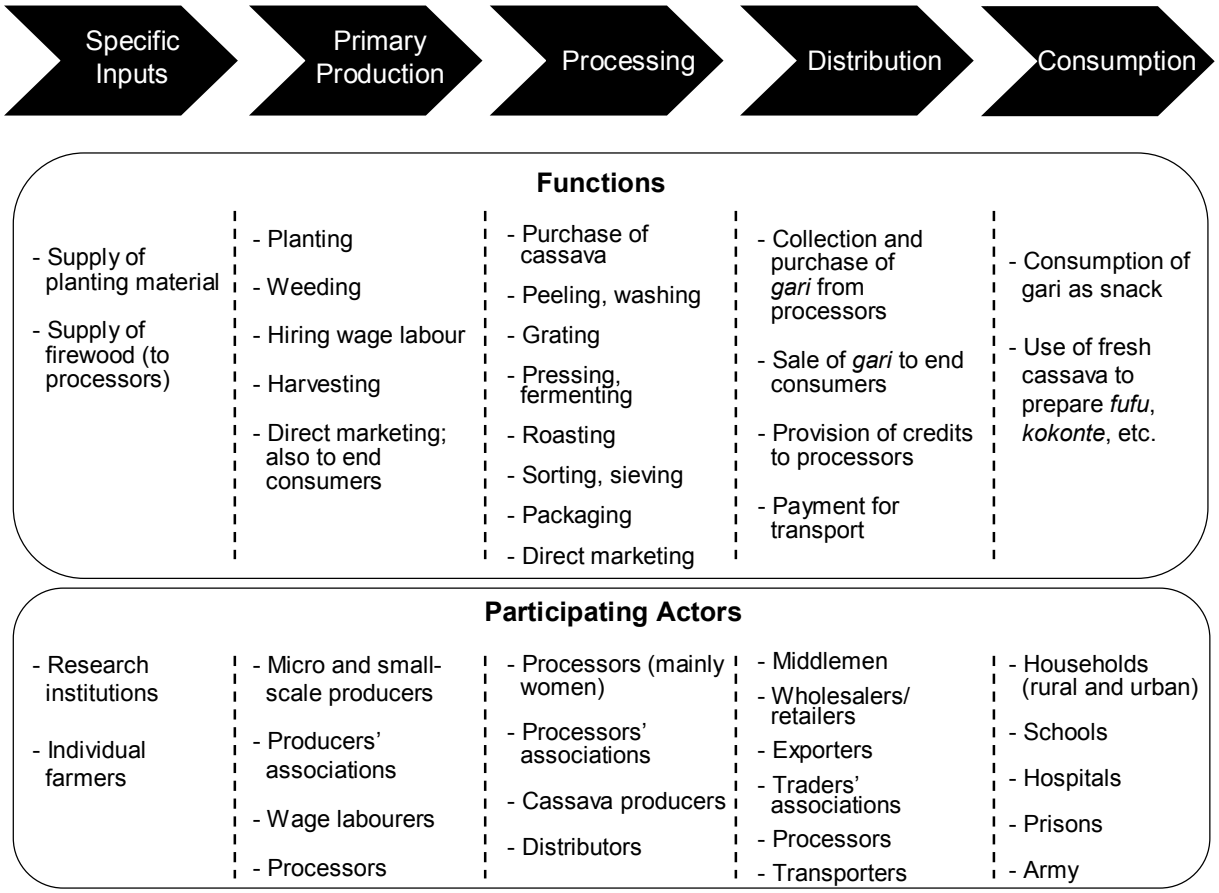
Considering a rather small population of Africans in Europe and the United States, and low consumer preferences for *gari*, it seems that demand for *gari* on **international markets** is saturated. Furthermore, countries like Nigeria, where production volumes of *gari* are much higher and the prices lower, seem to have competitive advantages over Ghana.

3.3.2 Value chain operators and their functions

A simplified version of the cassava/*gari* value chain is presented in Figure 4. The figure gives a general overview of the wide array of functions performed by various actors at different stages of the cassava/*gari* business.

At the level of the **specific input suppliers**, research and development institutions, and in some cases individual farmers, breed improved cassava varieties and supply them to micro and small-scale producers. Further, a small number of people provide fuelwood to *gari* processors. The group of **primary producers** can be differentiated according to scale of production. The fresh cassava sector is dominated by a large number of micro and small-scale producers scattered throughout the country who are partly isolated from the market centres and major areas of consumption.

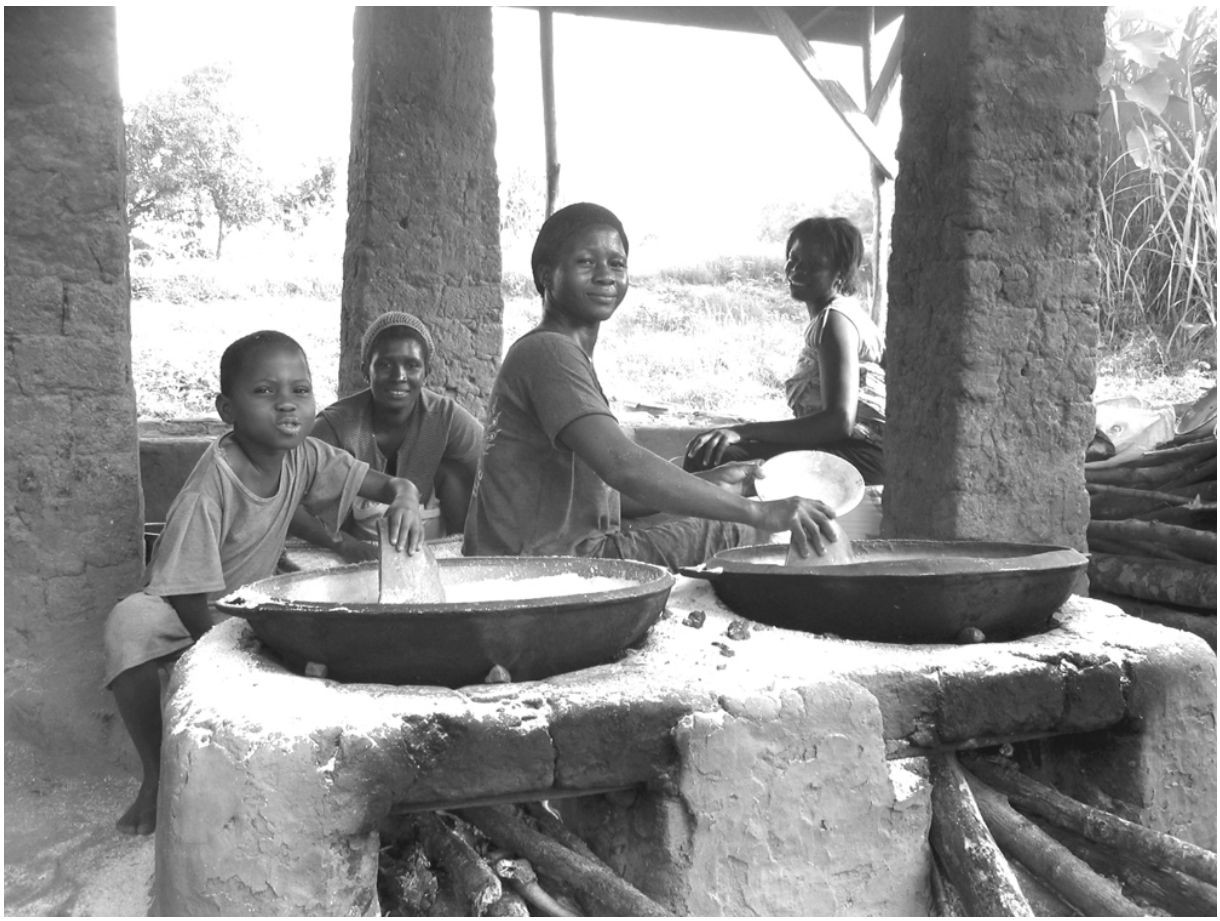
Figure 4: Cassava/*gari* value chain operators and their functions



There are a few medium-scale producers, and very few large-scale producers. Primary producers sell their fresh produce either to end consumers, or in many cases to individual processors and processing units for *gari*, flour and starch production. In some cases, cassava producers take up the function of processing in order to add value to their produce.

Primary producers also employ wage labourers to carry out activities such as weeding, and uprooting of cassava sticks. In other cases, family members are employed to reduce labour costs.

Processors, whose scale of operation seems to be concentrated mostly at micro and small-scale levels, represent an important sector for women. There are only few medium and large-scale processors established in Ghana. Although most of the processing takes place at the individual or household level, in some cases, women processors are organised in cooperatives that enable them to take up larger orders and maintain continuous supply for institutional buyers, such as schools, prisons etc. The aspect of direct marketing plays an important role for processors as they continuously seek opportunities to reach reliable buyers with constant demand, and thus bypass middlemen who would normally corner a substantial share of profit.



Small-scale processing of cassava: peeling (top), roasting *gari* (bottom)

In many cases, processors posses their own farm land where they plant improved cassava varieties, while in one instance, a processing unit initiated an outgrower scheme with a group of farmers to enter into a formal contract-based relationship. Such formal contract mechanisms ensure secure buyers for the producers, and a regular supply for the processors.

At the level of **distributors**, a large number of local or itinerant traders travel from one community to another, mostly during the lean season, to purchase *gari* from the processors. On the other hand, during the high season, the traders stand at the market centres (regional assembly markets) and wait for processors to come to them and sell *gari*. At such market centres, traders normally collect in bulk from numerous micro and small-scale processors. These large quantities of *gari* are then transported to the urban retail centres, where numerous retailers buy small quantities of *gari* on credit from the traders to sell it finally to end consumers.

Not only retailers take loans from the traders, but also processors. The processors, in turn, are supposed to sell their produce to the same traders on market days. Traders pay for the transport of the product from market centres to retail markets in urban areas. Employment and payment of labourers who load and off-load *gari* are also done by the traders.

Middlemen or traders collect small quantities of *gari* from numerous processors, and stack to deliver larger quantities for institutional **consumers** with a fixed demand. For support institutions providing services to the value chain operators in Ashanti Region see Annex 2 on page 68.

3.3.3 Governance of the value chain

As table 3 shows, fresh cassava producers' **share of profit** is only about 10% of the total profit generated within the *gari* value chain. Comparatively, processors' share is about 30%, while distributors corner a major portion of the profit with a share of about 60%.

Table 3: Results of the scoring exercise* to assess governance issues

	Producers	Processors	Distributors
Profit	**o**	**ooo**	**oooooo**
Bargaining power	**oo**	**oooo**	**ooooo**
Protection from competition	**o**	**ooo**	**oooooo**
Information concentration	**o**	**oooo**	**oooooo**

* In the scoring exercise, the informants were asked to distribute 10 paper chits between labelled cards in proportion to their "importance" and "influence" in the *gari*/cassava value chain.

Primary producers and processors seem to compete with each other by reducing their prices considerably, hence leading to lower profits. Distributors take advantage of this segregation by threatening to switch to other suppliers when producers and processors try to negotiate the price.

Another aspect that helps distributors determine and set the market price is their much higher **degree of organisation** in comparison with producers and processors. They seem to form very effective and functional associations where they coordinate the *gari* supply chain, "linking supply with demand, while controlling the flows of credit and information across the chain" (PEPPELENBOS, 2005:7). This helps them to share information about supply, demand, prices, etc., and improve their **negotiation position** vis-à-vis the farmers, who tend to be less informed. PEPPELENBOS (2005) attributes the organisational strength of distributors to the typical 'funnel' structure of Ghanaian food supply systems. Distributors are a much smaller group than other chain operators, hence, "better capable to build up organisational power and dominate the supply chain" (PEPPELENBOS, 2005:10). This enables them to protect themselves from competition from other potential traders.

Producers and processors often refer the phenomenon of price determination by distributors as price manipulation and distortion. **Mutual mistrust** seems to prevail in their business relationships. Therefore, long-term customer relationships between value chain operators remain poor, hence, the potential of factors, such as risk mitigation, mutual credit mechanisms and exchange of information stays underutilised.

Even if there have been efforts by support institutions to increase producers' and processors' **access to market information**, the effect has not been far reaching because the information is not timely and accurate, and support institutions possess extremely limited resources and personnel. Secondly, producers and processors do not actively seek market outlets. They wait for the traders to come to their fields or homes, and thus remain unaware of market demand and prices.

However, as it was seen in many cases, just helping producers and processors to form cooperatives or associations does not necessarily increase their bargaining power. Apart from their large number, and scattered, segregated character, there are some underlying **structural product-related limitations** which have to be considered. Fresh cassava is a highly perishable product which starts to rot 2-3 days after harvest. As poor producers cannot afford to keep cassava in the soil until market conditions are favourable, they sell their produce at any price, especially when there is a glut. This is also true for processors, although their position is somewhat better than that of producers because of a longer shelf-life of *gari*. However, absence of proper storage facilities and their inability to reach an agreement among themselves on selling prices reduce their share of profit considerably. Bargaining power of producers and processors increases marginally during the lean season, but as the costs

of not arriving at a purchase agreement are much higher for them than for the traders, they still end up selling their produce at low prices. On the other hand, distributors were found to have access to storage facilities that helped them to store the products and sell when market conditions were favourable.

Another factor that reduces producers' profit is the **high labour costs** associated with uprooting and weeding activities (where family labour is not employed for such activities). For processors at the small-scale level, initial investment costs for the purchase of basic equipment may be too high. In addition, transport to the market, taxes to the District Assembly and share to the market queen add up to reduce the total profit margin.

Apart from that, the micro or small-scale nature of primary producers and processors hinders them from meeting large orders and constant buyer demands.

3.3.4 Inefficiencies

Despite a well-developed industry and market system, both the *gari* and fresh cassava sectors are characterised by numerous inefficiencies. In recent years, distribution of improved varieties of cassava has helped to increase yields. Still a very limited quantity of this planting material is available. Therefore, not many farmers have access to it, and, they end up cultivating **different cassava varieties on the same field** to overcome shortage of sufficient planting material. In addition, they are forced to cultivate **poor-yielding local varieties**, which prevents them from meeting regular market demand. Further, farmers seem to lack knowledge on variety-specific usage. If *gari* processors are supplied with unsuitable varieties, it leads to poor quality and texture. Furthermore, it results in wastefulness of cassava by-products. For example, if a cassava variety with high starch content is used to produce *gari*, not only the amount and quality of *gari* will be low, but the potential for starch production will be underutilised as well.

Agro-environmental and inherent product-specific limitations, such as poor soil fertility, high perishability after harvest and **post-harvest losses** are other major causes for low incomes and poverty of cassava farmers. Some underlying structural weaknesses, such as low prices, low demand and low bargaining power vis-à-vis traders make farmers very vulnerable.

Poor processing facilities characterised by the use of rudimentary and inefficient equipment also lead to poor quality and low amounts of *gari*. Low purchasing power prevents processors from investing in modern processing equipments. Poor quality and low amount of *gari* implies a low value, and hence less income for processors. Furthermore, health-related risks for processors, mainly women, increase as a consequence of rudimentary heating and processing equipment. The absence of proper

storage facilities also contributes to **post-processing losses**, and therefore to a loss in the value of the product.

Finally, the inefficient equipment with poor output fails to produce sufficient quantities of appropriate quality to meet buyer/consumer demands. Hence, business relations stay temporary and short-term. Looking for new business partners every year leads to high transaction costs.

Furthermore, due to **broken commodity chain linkages**, processors lack information on production volumes, and reliable and near-by sources of fresh cassava. They are reported to have been sourcing fresh cassava as far as from Ivory Coast, causing high transport and transaction costs.

Similarly, fresh cassava producers seem to be dependent on middlemen to sell their produce. Their vulnerability increases when middlemen do not turn up to buy their produce. These missing linkages result in a scenario where producers, who lack knowledge on market supply and demand, overproduce in one season, causing price shocks. In the following season, as a consequence of these price shocks, many of them abandon cassava farming resulting in underproduction which shoots up prices. Such **cyclical fluctuation in cassava prices** forms an integral part of the cassava market and is a reason for the insecure livelihoods of cassava farmers.

Box 5: Marketing of cassava

Georgina Oduro is a cassava farmer living in Dompoase in the Adansi North district of the Ashanti Region. She entered cassava farming about two years ago after incurring heavy losses in rice cultivation. Cassava farming helped her in the beginning to repay some of her debts. But recently, she has been facing problems to find buyers. “There are no processors in this community who would buy my cassava”, she complains. “Previously, the only chop bar in the community bought my cassava, but now they have found someone else who sells them at a cheaper price”, she elaborates. While she talks about her problem, one of the biggest *gari* wholesale markets in Ghana gets ready, just few kilometres away at the Fumso market.

Asked why she does not respond to the demands of the nearby *gari* market, she attributes the problem to the lack of access to improved cassava sticks. “The President’s Special Initiative on cassava promised to provide improved cassava sticks, but they have not come back. So, we plant any kind of variety which is available”, she explains. This leads to poor yields, probably due to poor quality of the planting material. At the same time, farmers do not seem to identify unique selling points, or develop advantages of product differentiation. “If we do not find appropriate varieties for *gari* production, we just mix different cassava varieties and sell them to *gari* processors”, she mocks and smiles.

The **absence of standard weighing systems** for *gari* results in the emergence of mistrust and exploitation during trading. Both processors and traders seem to manipulate the size of *olonka*, a measure for *gari*, to their own advantage. Furthermore, a difference in the units used for trading (*olonka* and kilogrammes) causes a lot of confusion and mistrust while undertaking transactions.

3.3.5 Entry barriers

One major entry barrier for producers and processors is to meet **regular demand for cassava and *gari* from institutional buyers**. One of the reasons lies in their lack of knowledge on improved cassava varieties which are suitable for *gari* production. For *gari* processing, varieties with low water content are needed (such as *Abasafita)*. However, many farmers still cultivate local varieties. Moreover, several varieties with different maturation periods are grown on the same field. Therefore, it is difficult to harvest large quantities of the same variety as required by the market.

Another constraining factor is the difficulty in acquiring arable land. Subsistence farmers often do not have the possibility to expand their farm land due to traditional land tenure regulations, and in some regions (such as Eastern Region) even due to increasing population density.

The processors complained that there is a lack of adequate training for those who are interested in *gari* processing. Operators who grew up in *gari*-producing households, and thus had the opportunity of learning-by-doing, have got an advantage over newcomers. People interested in entering the *gari* business afresh would require training in processing methods such as roasting, squeezing etc.

Another entry barrier for *gari* processors who want to start a small-scale and semi-professional business is a relatively **high investment and production cost**. They hardly possess savings needed to set up the business. In addition, it is very difficult for them to access loans. Banks are reluctant to give loans to the poor because they fear that their clients are not able to pay back in time. Lack of collateral security makes it even more difficult for producers and processors to avail loans. As a consequence, the scale of production is limited and the quality of *gari* suffers.

Presence of strong trader associations, which protect them effectively from potential newcomers, pose an entry barrier at the distribution level. Information on markets, suppliers and customers are thus hardly accessible**.** Further, it is not easy for them to reach customers.

3.3.6 Poverty effects

Comparatively high demand and absence of specific quality requirements in the domestic market make it relatively easy for a large number of poor micro and small-scale operators to engage in the *gari* value chain. Assuming a positive cost-benefit ratio (after input, labour and maintenance costs are taken into account), *gari* business can make a small but significant contribution to the income security of poor households. Estimates based on QUAYE and PLAHAR (2004) indicate that *gari* business at a small-scale level generates an average monthly income of about US$ 45. In the following, the degree of increased **income and well-being of poor operators**

through performing basic functions within the *gari* value chain is assessed and described in greater detail (see also Table 4 on page 50).

Input suppliers who, for instance, provide planting material to cassava farmers or fuel wood to *gari* processors, hardly achieve sustainable benefits if these activities are their only source of income. Their functions can rather be seen as temporary jobs they can engage in as a kind of side-business.

Income and well-being of **farmers** who produce cassava, particularly for *gari* processing, cannot be clearly distinguished from those of other cassava farmers. Moreover, primary producers are highly dependent on the demand for cassava by *gari* processors. The demand changes seasonally, so farmers' income is not stable. However, cassava which cannot be sold to processors (e.g. due to low prices, low demand) can serve as a staple food for the family, hence contributing to household food security during hunger periods.

Processing *gari* is traditionally a women's business which is either performed part-time at the micro level or on a more regular basis for members of a processing unit. Most women reported that they have decision-making power at the household level over the money earned from *gari* processing. In addition, they stated that there has been an increase in their living standards as a result of engaging in *gari* processing.

Box 6: Utilisation of income generated from *gari* micro-processing

Rita, *gari* processor in Eastern Region: "*Gari* business has helped me in improving my family's situation. Now, we are able to afford roofing sheets for our house, pay our children's school fees and seek for proper health care from Nsawam since we have no clinic in our village. We can also buy toiletries such as toothpaste, soap etc. In addition, I am able to save money for my children to get married."

At the **distribution** level, local traders (including poorer women) have a considerable benefit in terms of income. Here, it is noteworthy that if exporters are involved in the chain they retain a higher share of profit.

Apart from performing functions as a value chain operator, there is also a possibility of being employed as a wage labourer. As there are only few medium-scale *gari* processing plants requiring substantial inputs, the potential for job generation in input supply is negligible. On farms, in contrast, seasonal employment is generated for the poor, especially during dry season, when uprooting of cassava becomes difficult due to hard soil. This task requires a large number of labourers and provides for comparatively high wages. Weeding land is another activity that is done three times a year. It is very labour intensive and thus provides temporary employment opportunities for the poor. Employment in larger *gari* processing plants could probably benefit the poor, especially women.

The domain of trade and logistics mainly includes tasks related to transport of cassava and loading/unloading *gari*. These are functions mainly performed by men. Cassava is a bulky commodity and thus requires many labourers.

On the consumers' side, one could imagine that if cassava prices remain constantly low, there would be a positive impact for the poor in terms of household income and food security. Due to comparatively low demand for *gari*, however, a decrease in the price of this product would not necessarily lead to its consumption at household level.

Lower prices of production and processing inputs, e.g. for improved planting material or firewood) may lead to less expenditure and thus contribute to a higher income.

The study team observed some **negative impacts on health and environment** in regard to the *gari* value chain. For instance, stoves that are used for roasting *gari* create smoke which, in turn, is a health hazard. Another issue is effluent discharge, which is released during fermentation of cassava. Its high cyanide content damages flora and fauna in the immediate environment, and also water sources in the long run.

3.3.7 Potential for making the value chain more pro-poor

Within the course of the study, **three major avenues** of a more poverty-oriented *gari* value chain were identified. Potential can be seen, firstly, in improving the efficiency of the *gari* value chain; secondly, in forming associations which benefit the poor; and thirdly, to some extent in product development and innovation. In the following, the three avenues are presented and discussed together with their limitations.

Improving the efficiency of the *gari* value chain

As the market potential for *gari* both in domestic and export markets is rather limited, the question arises whether the integration of poor newcomers would be a viable option at all. Furthermore, production costs (labour and input costs) are not always taken into account by small-scale operators, especially by those who are illiterate and thus do not have any accounting skills. Benefit-cost ratios for *gari* production at the small scale level in Suhum-Kraboa-Coaltar, Awutu-Efutu-Senya and Ho districts are 1.11, 0.95 and 1.07 respectively (QUAYA and PLAHAR, 2004); showing that profit margins in *gari* processing are rather small. Processors without knowledge of accounting are particularly in danger of running into debt.

In this respect, an option is that potential entrants provide existing *gari* value chain operators with inputs, for instance in the form of woodlots to supply processors with fuel wood. In addition, they could make use of by-products from *gari* processing (such as cassava peels) and develop businesses out of them, such as mushroom cultivation, animal feed production, etc.

For those who are already integrated in the *gari* value chain, it is vital to improve their production, processing and marketing. One option is the **use of improved equipment** such as graters, squeezers etc., in order to make *gari* processing more efficient and achieve a better quality. Moreover, health hazards could be reduced by using

improved stoves that create less smoke. The question is how the poor can afford to buy costly processing equipments as it is difficult for them to obtain loans. Further, the maintenance and repair costs seem to be high as well.

Provision of equipment to associations, with the underlying assumption that machinery will be managed effectively if it is communally owned, is problematic (see Box 7).

Box 7: Experience with communally-owned *gari* processing equipment

An association in Nsawam has got its own processing equipment. Members are supposed to give 5% of the *gari* to the association which later sells it to pay costs associated with machine operation and maintenance. This was, however, not sustainable because in the lean season, when cassava was scarce, people did not use the plant. Thus, it became difficult to cover maintenance and repair costs.

In addition, sales prices of *gari* go down in the high season due to overproduction. This shows that the processors' marketing strategies are underdeveloped. A possible option could be to create **proper storage facilities** for *gari* surpluses from the high season. The stored *gari* could then be sold during the lean season when prices are comparatively higher.

When considering the conditions under which processing could be performed by cassava farmers in order to add value, discussions showed that farmers could engage in processing only in their spare time. Here, one danger is that processing equipment would lie idle once they have finished with processing cassava they harvested from their own fields. It is worth considering establishing ***gari* processing plants at the community level** independent from but at the same time in proximity to cassava farms. This could ensure a ready market for cassava farmers who, along with processors, concentrate on their own fields of specialisation (whereby processing plants would still be in the hands of women).

Associations

Associations are an option for the poor if they help producers and processors to access loans or acquire literacy as well as basic accounting skills. In addition, a major function of associations could be the establishment of market linkages between *gari* processors and reliable buyers, such as institutions (schools, hospitals, prisons, etc.).

However, it has to be taken into account that group formation can be problematic. Often, mistrust among group members makes it, for instance, difficult to run a common processing plant, especially when it comes to responsibilities regarding maintenance and repair.

Product development and innovation

An option could be to explore the pro-poor potentials of **cassava starch and high quality cassava flour** value chains, where products for the pharmaceutical and ply-

wood industry (such as adhesives, glucose syrup, pellets) are manufactured. It seems that there is a high demand for such produce in domestic as well as in export markets (BOKANGA and TEWE, 1995; SAFO-KANTANKA, 2004). Within the framework of the Presidential Special Initiative (PSI) on Starch, more than 10,000 farmers have been engaged in producing improved cassava varieties to supply the Ayensu Starch Factory, which is one of the largest cassava starch producing factories in sub-Saharan Africa. Here, outgrower schemes are in place, plus there are other farmers who are working on the company's nucleus and block farms. However, it remains to be assessed whether the anticipated employment effects lead to improved income and household food security for the poor.

Interviewees suggested that there is a possibility to produce so-called **enhanced *gari***. In this case, *gari* is mixed with soybeans, dried fish or cocoa. It is a kind of convenience product where *gari* is also improved in terms of taste and nutrition. There could be a niche market for such a product. However, the demand for enhanced *gari* products is rather limited both domestically and for exports because many people are not aware of them.

Another possible option to improve *gari* could be **attractive packaging** (including labelling, expiry date etc.). Some processors as well as the Food Research Institute Ghana have already started with packaging *gari* and selling it in small quantities.

Packaged and labelled *gari*

The idea is to sell packaged *gari* in supermarkets in order to target the urban middle-class. While, on the one hand, many consumers mentioned that they prefer testing the quality of *gari* by "feeling and tasting it" from the open sacs on open-air markets, there are others who believe that packaged *gari* indicates higher quality. Similar to the case of enhanced *gari*, the demand for packaged *gari* seems to be limited as higher pricing attracts only a few consumers in a small niche market. Institutional buyers prefer buying *gari* in bulk and at a low price.

Probably a good option is to focus on both packaged niche products (after a thorough market analysis) and distributing *gari* in the 'ordinary' way to the major buyers.

3.4 Grasscutter

3.4.1 The market

Grasscutter rearing in Ghana is still in its infancy. Currently about 5,000 farmers rear an estimated 25,000 animals for breeding only (Pers.Com: AHIABA, 2006). Consequently, hardly any farm meat (surplus males and few selected females) has been sold on the market. In contrast, the domestic market for wild grasscutter (bush meat) is vibrant: NTIAMOA-BAIDU (1998) cautiously estimates that 4.5 million hunted grasscutters, equalling about 23,000 tonnes of meat, are traded annually in Ghana. According to WEIDINGER (2004), the actual consumption volume (in 2001) was several times higher, which indicates that many Ghanaians supply themselves with grasscutters (through trapping and hunting). Irrespective of religion or ethnicity, they consider grasscutter meat a delicacy of high nutritional value, and tend to prefer the taste of bush meat to that of farm meat.

Sales prices for bush meat in the **domestic market** range between US$ 2.10 and 4.20 per kilogramme depending on the market location. Farm meat, in contrast, is sold at approximately US$ 5.30 per kilogramme, as farmers cost in their expenses on fodder and other inputs. Until now, this price difference does not affect the demand for farm meat: consumers would buy more meat, if it were available (NTIAMOA-BAIDU, 1998:20). Market studies suggest that twice or three times as much grasscutter meat would be needed to satisfy consumer demand in Ghana (Pers.Com: WEIDINGER, 2006).

Consumers are increasingly concerned about the use of poisoned bullets by hunters. In addition, traceability of the meat, especially transparency on slaughtering and dressing methods, is a matter of concern not only for Muslim consumers.

There is also a niche **export market** for grasscutter meat, particularly in cities with significant Ghanaian (West African) population, however, with a low price elasticity of demand. In one instance, smuggled canned grasscutter meat was sold at the equivalent of US$ 18.70 per kilogramme on the London market (Pers. Com: ASIEDU, 2006).

Left: grasscutter meat on a local market; right: domesticated grasscutter

3.4.2 Value chain operators and their functions

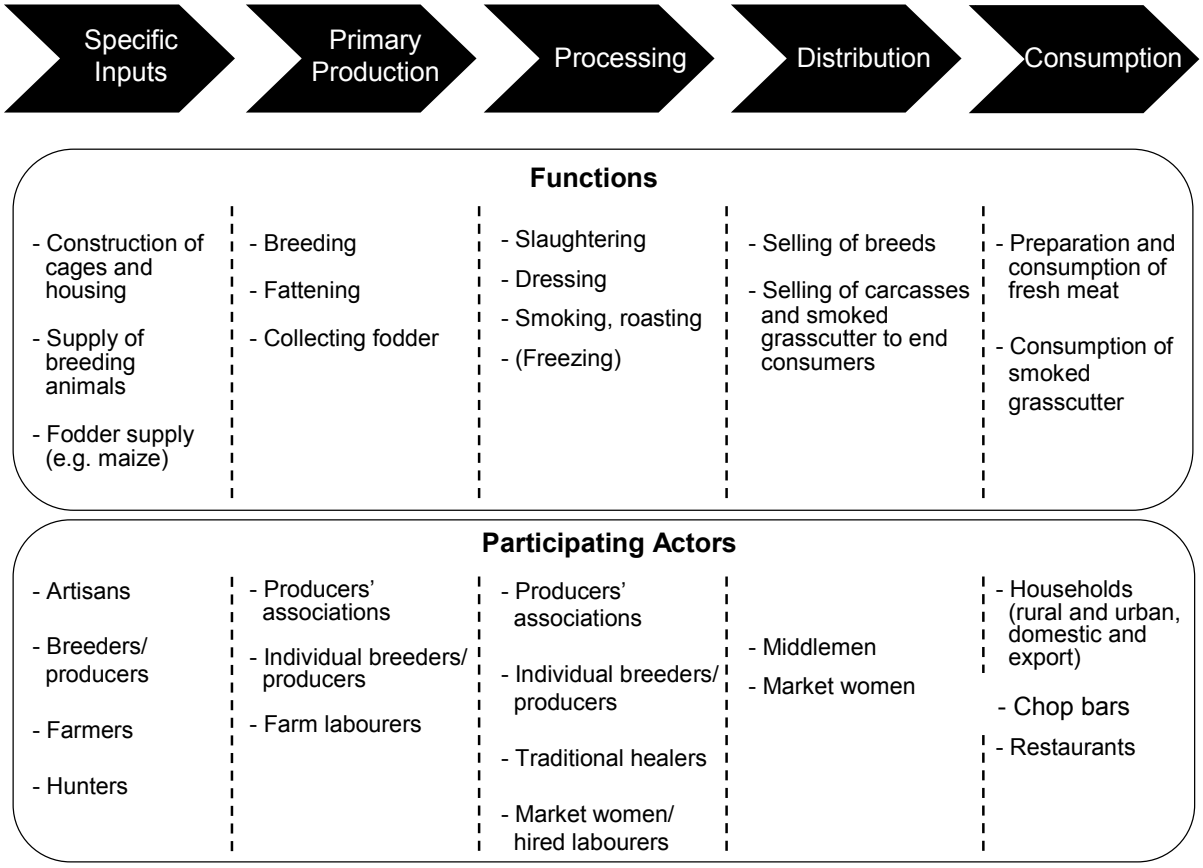
Breeders take the predominant position as value chain operators within the **farm meat value chain** (see Figure 5 and Annex 1, page 66). As input suppliers, they raise and sell breeding stock to other farmers, and construct cages and housing themselves. A few of them have already started to fatten animals for meat production, and upon buyer request they even process their animals (slaughtering, dressing, smoking and roasting). Additionally, they organise the distribution of their produce to individual households (direct marketing). Suppliers of breeding stock from outside the grasscutter farmers' community are either breeding stations abroad (in Benin) or hunters who supply trapped animals for on-farm taming and rearing.

On the input supply side, artisans construct housing and cages for the animals; wire weavers provide the required (welded) mesh; and a small but increasing number of farmers supply grasscutter rearers with fodder grass, maize etc.

A much greater division of roles and functions, in contrast, characterises the **bush meat value chain**. Material suppliers provide bullets, chemicals and traps to hunters. These sell their catch either directly to consumers (e.g. smoked and roasted meat at the roadside) or to middlemen and local traders. Traditional healers buy certain quantities of meat, or parts of the animal such as intestines and hair, for the preparation of indigenous medicines. Market women play a major role in the distribution of bush

meat and may also process meat to sell it to individual buyers or chop bars. There is a retailing system in larger cities like Kumasi or Accra.

Figure 5: Grasscutter value chain operators and their functions



3.4.3 Governance of the value chain

Most of the grasscutter farmers are organised in associations and these govern the value chain almost entirely. However, an unrecorded number of grasscutter farmers are not members of any association.

Consequently, breeders/producers retain all the profits from production and marketing. They only depend on certain input suppliers such as Wire Weaving Limited in Accra, which has a monopoly on the market for double-layer wire mesh and presumably makes a considerable profit.

Degree of organisation

The high degree of organisation and coordination within certain grasscutter farmers' associations enables them to set prices for breeding animals, meat, and hired labour. In this way, they largely protect themselves from other potential competitors and fulfil their own profit expectations.

They also set standards for grasscutter housing, and some farmers have trained artisans in the construction of appropriate cages.

Crucial information, for example on sources and prices of breeding stock or supplementary feed, is distributed through internal information channels within the associations. This also contributes to low transaction costs of purchases and sales and helps to establish stable relationships between sellers and buyers. Moreover, effectively organised associations also market jointly in order to increase their bargaining power. This puts them in a good position in negotiations, for example with carpenters on prices for input materials (e.g. measured pieces of wood) or final products (cages).

The interviewed associations, however, are still in a phase of development and stabilisation. They depend on external support and sponsorship for certain activities, such as participation in training programmes. In many cases, only few members show active commitment, memberships often fluctuate, and resource generation through sales of breeding animals is still weak. Most of the interviewees felt that the association is not able to provide them with direct benefits, for instance in terms of access to loans or breeding stock. Most of the breeders prefer to increase their own breeding stock before selling to farmers in need (Pers.Com: DIEHL, 2006).

In general, though, most of the associations have managed to build and promote good trust relationships among their members through various activities, such as:

- Regular sharing of information on recent experience, constraints or business opportunities;
- Provision of training (e.g. master training and refresher courses) and training materials to interested members;
- Rotating joint visits of members' farms for monitoring purposes.

On the other hand, the study team observed some level of mistrust between producers and input suppliers:

- Certain feed providers sell sprayed and treated fodder to producers. According to one affected producer, such an incident caused the instant death of 80% of his breeding stock.
- Certain hunters hide information on the sex of breeding animals from the bush, and the farmer might not be able to detect it. In addition, some hunters apply improper trapping methods, causing hidden injuries that lead to the death of the animal.

Within the **bush meat value chain**, traders can be considered the most powerful value chain operators. At the central market in Kumasi, for instance, almost all grasscutter meat is traded by a group of about 50 market women. They are coordinated by one market queen who determines purchase and sales prices and organises the supply of different bush meat products to the urban outlets. This ensures a high concentration of value added at the distribution stage of the chain. Each market woman

develops a personal relationship with a number of hunters, depending on her experience and the level of success. There are well-established links between hunters, middlemen and market women. This network, however, is dominated by market women, who protect themselves against competition and exclude hunters from selling grasscutters independently to urban households or chop bars.

3.4.4 Inefficiencies

The study team found numerous inefficiencies in grasscutter production, in particular with regard to animal health and nutrition, housing and breeding. This slows down the growth of the grasscutter industry:

- Poor and inadequate feeding, especially during dry season, often results in a slow growth rate, a small litter size, an unfavourable male/female ratio in the offspring, and high morbidity and mortality rates of the animals. Reasons mentioned were lack of adequate fodder banks, limited variety of feed, and insufficient research and extension on grasscutter feeding.
- Furthermore, animal health is negatively affected by untimely or inappropriate deworming, which can lead to significant morbidity and mortality rates.
- Farmers, in particular the resource-poor, often use inappropriate materials (e.g. thin mesh, wood) to construct low-cost cages for their animals. This leads to losses of animals due to escape and injuries. In addition, grasscutters are not always sufficiently protected against thieves, snakes, soldier ants, etc. Lack of information on nutrition, breeding and housing, and lack of capital to invest in minimum standard equipment and proper breeds represents the two main reasons for the named inefficiencies.
- In some grasscutter farm populations, inbreeding and the practice of keeping low fertile females in the stock cause low productivity within the herds.

Among grasscutter farmers, resource-poor and/or inexperienced newcomers are particularly affected by these inefficiencies.

3.4.5 Entry barriers

Resource-poor farmers are considerably constrained by the **initial investment costs**, as they do not have sufficient financial resources (such as savings, credit or other funding sources) for breeding stock, housing or training (Pers.Com: MENSAH, 2006). As a consequence, interested smallholder farmers keep on trying to domesticate wild animals, experiencing mortality rates of up to 80% on average. It turned out that **lack of access to breeding stock** is another major entry barrier, in particular for the resource-poor. Limited breeding animal supply from e.g. Benin, handicaps not only the development of the grasscutter industry in Ghana, but also in West African neighbouring countries (Pers.Com: DIEHL, 2006).

Insufficient access to knowledge and information on grasscutter rearing prevents particularly resource-poor farmers, who may not be able to afford training courses, from entering the grasscutter business. Existing training offers are also not necessarily suited to their needs, as resource-poor farmers learn rather through observation and learning-by-doing than through formal methods.

As a result, resource-poor farmers who attempt to start grasscutter farming on their own apply knowledge from other farming activities (e.g. poultry or pig rearing), which results in either low productivity (e.g. through inbreeding) or high mortality rates.

Box 8: Entry barriers for the resource-poor – the perspective of a successful farmer

Nana Adu from Fiapre in BAR, started grasscutter rearing in 1998 when he bought 60 animals from hunters. Despite initial problems with taming wild breeds and obtaining proper cages from local artisans, he has managed to build up a stock of 130 females and 50 males, to sell significant numbers of animals regularly, and to bring down the mortality rate in his herd close to zero. According to Mr. Adu, the major entry barrier for resource-poor farmers to grasscutter rearing is access to breeding stock: “When you tell the poor that a breeding animal costs ¢ 350,000 [i.e. US$ 37], they run away. Then they start with wild ones and become discouraged when only three out of ten survive, or all die.” Until now he has trained about 60 farmers, including resource-poor. Some of them are running their own grasscutter farms successfully. He does not charge much for the training; to those that cannot afford, he also gives starter families plus cages for free; later they pay back to him with animals. However, he has faced some problems with lending to the resource-poor: “They find all kinds of excuses to escape paying back, like ‘my animals were stolen’, they even deliberately destroy their cages to ‘prove’ that, ‘The animals did not litter’, ‘They died, and I do not know the reason’”. Even with groups of resource-poor farmers, who were supposed to share responsibilities and apply sanctions to defaulters, it has not worked so far. Mr. Adu is convinced that the main reason for grasscutter farming in Ghana still being in the breeding phase is that so many people fail. Main constraints, especially for resource-poor farmers, are insufficient knowledge and lack of money to start or expand production: “Credit is given to traders rather than farmers.”

The need of large buyers for a **regular minimum supply** of animals constitutes another entry barrier for grasscutter rearers to a ready market. A large fast food restaurant in Accra, for instance, would require significant numbers of carcasses every day to include grasscutter dishes on its menu (Pers.Com: LABADI ASSOCIATION, 2006).

Higher consumption of grasscutter meat in niche markets, for instance in European countries, might not be realistic for now. Especially the European food market represents an immense entry barrier considering the high hygienic standards on meat products imported into the European Union.

3.4.6 Poverty effects

The study team found only a few resource-poor grasscutter farmers during the survey, and they received support from civil society organisations and certain bilateral development agencies (see Annex 2, page 69). The majority of grasscutter rearers perceive the business as a source of additional income, while they have other jobs,

e.g. in the public service, or run other lucrative businesses. Most of the producers with resources start the grasscutter business after they have already gained experience in similar activities, such as snail or guinea fowl rearing. Moreover, they mostly invest their own capital to enter the business.

In the course of the study it became clear that grasscutter farming is **not necessarily attractive to resource-poor farmers** due to its labour intensive nature, the need for constant caring and the comparatively late returns on investment (after two years). In addition, the estimated internal rate of return of 30 to 40% per annum (MOAP, 2004) may be attractive for ordinary investors, but not for resource-poor farmers; most of whom would require higher returns in shorter time (Pers.Com: ABABIO, 2006).

Only about 10-15% of grasscutter farmers are reported to be women, even though they may provide a helping hand in certain tasks, e.g. feeding. There are several reasons for this: Household chores often conflict with grasscutter rearing activities and women reportedly tend to fear the direct contact with the animals more than men. Moreover, the male household head usually takes investment decisions on activities such as grasscutter rearing.

Employment effects in the primary production of grasscutter **are rather limited**. About 100 animals may employ one part-time farm labourer, and the rate of additional employment declines considerably with the size of the farm.

Cautiously assuming a fully developed grasscutter meat industry in Ghana, the processing of carcasses can have some potential for jobs for unskilled male labourers. They may become employed in the slaughtering and dressing of animals. Moreover, an increasing supply of specific inputs could lead to a demand for additional labour in the carpeting and wire weaving industry, and to employment opportunities for the poor in the fodder industry. Regarding trade and distribution, the potential for job generation for the poor seems rather limited, even though this would benefit women.

Wider poverty impacts, for example in terms of the reduction of bushfires that endanger assets of the poor (as a result of declining demand for bush meat), may materialise to a significant extent only in the far future, and would depend on a lot of other factors (Pers.Com: BARGFA, 2006).

3.4.7 Potential for making the value chain more pro-poor

Given the very limited employment opportunities for poor (unskilled) labourers in the grasscutter sector, the only avenue for a pro-poor support of the development of this value chain lies in stronger attempts to link resource-poor farmers to the grasscutter market. Easy access to fodder and no need for land are potentials for the integration of resource-poor farmers into the grasscutter business. However, all stakeholders interviewed admitted that this is a challenging task and that current pro-poor support

mechanisms (see Annex 2, page 69) are still at a trial stage, with factual results still to be seen. The following key requirements for a potentially successful integration of resource-poor farmers were mentioned:

- In addressing the needs and constraints of the resource-poor, it is important to adopt a **holistic farm business approach** rather than a one-dimensional business one. To minimise risks, grasscutter rearing should be seen as an additional, integrated farm activity and not as a full-time activity.
- Support institutions must ensure **close monitoring** and competence building of resource-poor farmers to prevent failures in sustaining the business.
- Resource-poor farmers need to be enabled to take informed decisions on whether to start up business (considering labour and skills requirements, timing of cash flows, etc.). In this context, it is important to showcase successful (poor) farmers.
- Considering the exposure of resource poor-farmers to risks, any support strategy has **to lower the investment risks** (e.g. through the use of easily accessible local resources for housing) and encourage a gradual building-up of the business (e.g. a one-tier cage at the beginning, and later expansion).

Single farmers' associations and support institutions share the view that true interest and commitment to run the business is a precondition for successful grasscutter rearing. They believe that, to demonstrate their interest, resource-poor farmers need to overcome a certain hurdle, e.g. through own financial and/or material contributions to the initial investment. The challenge, however, is to determine on a case by case basis the height of this bar.

Experience in Benin has also shown that poor grasscutter farmers are tempted to satisfy urgent needs (payment of school fees, purchase of medicine etc.) through sales of animals, without considering the need for replacement to establish breeding stock. Where these animals were donated, sanctions would be required but are difficult to enforce (Pers.Com.: ABLEKUMA GRASSCUTTER FARMERS ASSOCIATION, 2006).

Share-rearing of animals and other forms of joint management of grasscutter stock by (informal) groups of poor were ruled out as viable options. In Ghana, individual ownership seems to be crucial for sustainable business success. Similarly, the idea of addressing hunters (most of whom are poor and live in remote rural areas) as target groups for support was not considered to be promising. Even though hunters are often organised in groups, know about the required feeds and how to handle the animals, they are said to lack a sense for rearing, regard grasscutters as wild animals, and are used to quick returns on investments.

4 General conclusions

The study team has drawn the following conclusions, which highlight similarities as well as specific features of the three value chains under review. Even though most of the study findings confirm earlier insights into value chain issues, they re-emphasise the necessity to use existing potentials for poverty-oriented agribusiness promotion.

The **share of producer's profit** may range from about 10% in the production of fresh cassava to about 25% in mango production. The profit shares may even be higher if production and processing or marketing are in one hand (vertical integration e.g. in the case of grasscutter breeders) and if the degree of organisation of producers is strong (e.g. through associations).

Effects of a strong **degree of organisation** are visible especially at the level of exporters/traders. Consequently, crucial information on prices and standards is concentrated at this stage of the chain, particularly in traditional/open-air markets. This leads to comparatively higher profit shares for distributors.

The value chains under review are largely driven by market forces, and not so much by factors such as clientele, gift exchange or hierarchies. Nevertheless, the chains are accompanied by typical **market failures**, for instance cyclical fluctuations in cassava prices. One of the reasons lies in the widespread **mistrust between and among value chain operators**. This makes trading and collaborative business arrangements extremely difficult because weak formal market rules and non-supportive informal institutions lead to high transaction costs of coordination, business establishment and maintenance, and market exploration.

Another factor that adds to high transaction costs in the value chains under review is a lack of **contract-based relationships and non-compliance**. Although a few outgrower schemes exist, such as for instance in mango and *gari*, they are at an infant stage and hence their effects still remain to be seen. Lack of contract-farming schemes hampers security and regularity of incomes for poor value chain operators as they appear to be trapped in a vicious cycle of mistrust based on short-term speculative relations. It also poses risks to entrepreneurs who are interested in establishing business relationships for example with small scale producers.

High investment and production costs are **entry barriers** relevant to all three commodities. While high standards and quality requirements characterise especially mango, for grasscutter the shortage of breeding stock poses a major entry barrier.

Assuming a fully developed industry for the commodities under review, only *gari* promises **a broader involvement of poor** as value chain operators**,** especially at the processing and distribution level (see Table 4). On the other hand, both mango and grasscutter value chains seem to be less beneficial for the poor. Some **employment**

effects for unskilled wage labourers could be expected in the mango sector, while they seem to be quite considerable in the *gari* value chain, especially for women. In the grasscutter sector, employment effects are comparatively limited. Only in the case of *gari*, could resource-poor producers possibly benefit from lower input prices.

Table 4: Potential poverty impact of the development of the value chain

The degree to which income and well-being of the poor* (particularly women) increases through:		**Value chains****					
		Mango (exotic varieties)		**Gari** (improved varieties)		**Grass-cutter** (meat)	
		Ass.	♀	Ass.	♀	Ass.	♀
- their performing of sustainable profit-generating functions as value chain operators:	- as input suppliers	--	--	o	-	-	nil
	- as primary producers	-	--	-	-	--	-
	- as processors	--	-	+	+	--	--
	- in distribution	--	-	+	+	--	+
- their employment as (unskilled) wage labourers within the value chain***:	- in input supply	-	-	o	-	-	nil
	- on farms	o/+	o	o/+	-	-	nil
	- in processing plants	-	-	+	+	-	o
	- in trade and logistics	o	+	-	--	--	-
- lower prices of products they consume		nil	n.a.	n.a.	n.a.	nil	n.a.
- lower prices of inputs they use for production or processing		--	n.a.	+	+	nil	n.a.
- other benefits from chain promotion (e.g. positive impact on their health or environment)		?	?	+	++	?	?

Key: ♀ = Degree of female participation / share in benefits; n.a. = not applicable; ? = not clear; Ass. = Assessment; -- = very low; - = low; o = medium; + = high; ++ = very high

* The poor are here defined as resource-poor farmers (see page 14) and non-farmers who live below the poverty line of US$ 1 per person/day

** Assuming a fully developed industry

*** Assuming reasonable wages and certain minimum social standards (which is currently not the case)

External mediation is probably crucial to help the poor to build long-term relationships and providing them with necessary financial and technical inputs. However, current **agribusiness support mechanisms** are insufficiently tailored to the needs and constraints of the poor. For instance, formal credit schemes and government extension services reach mainly out to farmers with resources having a comparatively stronger asset base.

Ghana faces low productivity at all stages of the value chains. Apart from a comparatively stable political and societal environment, Ghana currently has **insufficient cost advantages and only certain site advantages against regional and international competitors**. For instance, Brazil and Peru in the mango sector and Nigeria in *gari* seem to out-compete Ghana under current circumstances. The study findings support the hypothesis that price differences between domestic and export markets (where they exist for the products under review) are not necessarily favouring export markets, especially if costs of market entry, particularly for resource-poor farmers, are taken into account. Considering limited poverty effects of Ghana's integration into export markets, the potential of domestic markets for growth and poverty reduction seems to be underutilised, and has to be explored further.

If consumer prices decline, as for instance through a reduction in transaction costs or a minimisation of post-harvest losses, there is a high potential for an increasing demand of Ghanaian mangoes in domestic and export markets. This also applies for grasscutter meat in the domestic and regional markets. However, the same may not hold true for *gari* where individual and household demand seem to be rather low.

5 Recommendations

The findings of this study confirm the widely accepted assumption that economic growth is a necessary but not sufficient precondition for poverty reduction. Similarly, the promotion of value chains for domestic and export markets as such does not necessarily contribute to achieving the Millennium Development Goals of reducing poverty and hunger. Unless designed and implemented in a pro-poor manner, agribusiness promotion is even likely to widen the gap between poor and non-poor in developing countries. The following sections provide some practical recommendations on

- How value chain promotion programmes could achieve a higher and broader poverty reduction through more targeted support measures in the context of technical (and financial) cooperation;
- How the GTZ Sectoral Project Agricultural Trade could assist agribusiness promotion projects in pro-poor value chain analysis; and
- How BMZ and MoFA could design pro-poor strategic frameworks for agribusiness promotion.

5.1 Recommendations to value chain promotion projects

There are three key **preconditions for a successful promotion of value chains**: An existing domestic and/or export market for the product(s); a comparative site and/or cost advantage over competing countries; and a true (not donor-driven) interest and commitment of (potential) value chain operators to develop the respective chain.

A **pro-poor selection of value chains** among those that fulfil the above-mentioned conditions would mean to

- Apply clear poverty-impact criteria (compare Table 4 on page 50), in particular the prospects for (and magnitude of) the integration of poor operators into the chain, but also the prospects for generating employment generated for unskilled poor men and women within the chain;
- Select value chains that are supported by NGOs, and other civil society actors that are known to be sincerely committed to poverty reduction, including the capacity to mobilise, organise, train, and monitor the poor;
- Give priority to commodities in the production of which poor regions of the country have comparative advantages (e.g. in terms of agro-environmental conditions).

In the **pro-poor design and implementation of value chain promotion activities**, it would be particularly important to

- Involve the poor in value chain analysis, identifying their specific potentials and constraints for market integration, their current and/or potential position within the chain, framework conditions relevant to them, necessary targeted support measures (within and beyond the scope of agribusiness promotion), etc.;
- Enable resource-poor farmers to take informed decisions on whether or not to start the respective business, providing them with information on labour and other input requirements, cash flow implications, etc.;
- Apart from value addition, consider opportunities for value capturing (e.g. through the minimisation of post-harvest losses) and market diversification (e.g. linking micro-processors to institutional buyers) that may yield quicker and more cost-effective benefits for the poor;
- Together with implementing partners, develop appropriate strategies for the gradual build-up of the business by resource-poor farmers and its smooth integration into their prevailing production systems;
- Begin as early as possible with research into low-cost, appropriate technologies (as for instance, low cost housing for grasscutter) for resource-poor producers and processors;
- Link up with private and public partners for the coordinated implementation of complementary measures to make the poor 'linkable' to the market, e.g. in the fields of institutional development, basic infrastructure, basic education, basic health; as costs of functional institution building are high, such long-term support has to be provided by grass-roots-level organisations; bilateral and multilateral organisations and programmes cannot be present at all levels;
- Jointly with private partners (including NGOs), develop and test pro-poor financial support mechanisms such as pre-financing of inputs in outgrower schemes, rotational lending (in cash or kind) among the poor, results-based payments to implementing partners, matching grants to group savings, leasing of equipment, etc.;
- Learn from and adapt successful examples of the integration of the poor into value chains and show-case own best practices of achieving this.

5.2 Recommendations to the GTZ Sectoral Project

The following recommendations seek to give impulses to the GTZ Sectoral Project Agricultural Trade to modify its theoretical concept on the Value Chain Approach. The overriding aim is to adapt the Value Chain Approach by broadening its perspective to target the poor, and to serve as a more appropriate instrument for operationalising it at the project level.

- Simplification of economic reality through a value chain map is helpful. However, this should not exclude complex interrelationships and interdependencies between and among value chain operators and actors. As such complexities are often too lengthy to visualise in the form of a model, it is recommended to use a more creative and diversified set of tools and symbols. This will help to make visualisation easier to understand, particularly for poor and less educated value chain operators.
- Drawing a value chain map in a participatory manner is the best way to come close to reality. Considering hierarchies and power structures prevalent in a value chain, and to ensure participation of all stakeholders, it is advisable to follow a step-wise approach to value chain mapping. In the first step, a draft of the value chain should be presented, discussed and modified in homogenous stakeholder sub-groups. Each sub-group should deal with the events related only to their own specific level. In the second step, a facilitation team should integrate the results of all sub-groups to create a modified value chain map. Finally, in the third step, this map is presented in the plenary, and discussed.
- “It is better to be approximately right than precisely wrong”. In the context of a value chain analysis, this proverb implies that it is practically impossible to quantify all parameters of a value chain, such as number of operators, levels of income, volumes of production, number of jobs etc. Therefore, it is recommended to complement incomplete quantitative data with qualitative information. For example “large number of producers”, rather than “250,000 producers”. In action-oriented development cooperation, it is neither necessary nor possible to work on the basis of pure quantitative data.
- Analysis of conflicts arising from shifts in negotiation power, unequal distribution of benefits, asymmetric information and competition for resources offers a good platform to assess linkages and governance issues. This contributes to formulating possible intervention strategies for pro-poor development.
- It is important to be very careful when making statements on social and cultural behaviour of the poor in a value chain. The scope of value chain analysis lies outside this sphere of influence. It is necessary to complement a value chain analysis with a study on the influence of social and cultural norms in business networks.
- Effectiveness of a pro-poor value chain analysis should be measured on the basis of high and broad market integration of poor value chain operators, and not on the basis of a pure economic growth and business optimisation. The focal intervention area should be to identify appropriate instruments to link weak and marginal value chain operators to the market.

- While talking about pro-poor upgrading, it is necessary to formulate specific criteria to identify and target the “real poor”. This would ensure better distribution of value-added among poverty groups. For instance, in Ghana, the target group of GTZ/MOAP consists of small agricultural producers, and of persons who earn their living by processing and marketing agricultural products or by providing equipment to the agricultural sector. These target groups do not necessarily represent the poor.
- It is important to highlight not only entrepreneurs and lead firms in terms of business establishment and profit generation, but also those who have generated positive and fair distribution effects along the value chain.
- Before selecting a value chain to promote, it is recommended to identify and locate the poor, consider regional disparities, and assess how much the poor can benefit from agribusiness promotion. This should go hand-in-hand with the analysis of market studies, as well as of the economic and institutional environment.

5.3 Recommendations to MoFA and BMZ

Existing government policy papers relevant to value chain promotion in development cooperation (BMZ, 2006; MoFA, 2002) highlight the need to integrate agricultural producers in domestic and export markets. However, they are vague on target-group specific support and promotional strategies, and on how pro-poor growth can in fact be achieved. To provide better guidance on pro-poor value chain promotion to development agencies and programmes, the study team recommends to

- Be more precise about who is meant by “small farmers” (who constitute the vast majority of farmers in sub-Sahara Africa), distinguishing smallholders with and without resources. They have different needs in regard to market access, etc.;
- Differentiate and specify promotional approaches, strategies and instruments in terms of target groups (categories of farmers, gender) and the expected poverty impact on these groups;
- Provide fewer ‘blueprint’ strategic guidelines on agribusiness promotion (“improvement of the information flow between actors”, “improvement of producers’ degree of organisation”, “introduction of international standards”, “improved financial service delivery”, etc.) but acknowledge the complexity of framework conditions for different target groups at the location of intervention to assure a maximum poverty impact of support activities;

- Pay more attention to the role of domestic markets (including those for staple foods that are produced and consumed by the mass of the population) in enhancing food and income security of the poor;
- Be more clear about the fact that agricultural trade promotion as an isolated programme approach is neither suitable nor sufficient to contribute to a broad poverty alleviation, that it requires coordinated efforts of different development actors (especially at the micro level) to make resource-poor farmers 'linkable' to the market.

In their role as funding agencies, BMZ and MoFA are also advised to spend public funds on agribusiness promotion programmes that can sufficiently prove their poverty orientation and make a factual contribution to the achievement of the Millennium Development Goals. Technical and financial development institutions should facilitate the creation of new links between private service providers and the poor and strengthen the existing links. This can be achieved through institutional capacity building, training, financial investment support, or subsidies.

Direct support or sponsorships to medium and large scale commercial farmers and export enterprises should be left to the private sector (international companies, private consultancy firms, national and foreign associations and federations, etc.).

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SRAHA, T.: Business specialist, TIPCEE, Accra, July 2006.

VOISARD, J.M.: Export business development director, USAID/TIPCEE, Accra, August 2006.

Glossary

Contract-based relationships

A kind of market interaction or supply relationship (between buyers and sellers) that promise trust, reliable delivery, regular supply and reduced risk of poor quality. As an effective tool for reducing transaction costs, such contracts could be formal or informal, written or oral.

Entry barriers

Circumstances that create disadvantages for new competitors attempting to enter the market. These may include government regulations, economic factors, and marketing conditions.

Fully developed industry

A competitive industry characterised by efficient flows of required goods and services, exhaustion of scale effects and specialisation / differentiation.

Gari

A roasted and fermented cassava meal.

Governance

In the context of this study, governance describes how a value chain is organised. It reflects relations between value chain operators and determines for instance information asymmetries and the distribution of benefits along the value chain.

Grasscutter

A rodent species (*Thryonomos swinderianius*) found in the tropical regions of sub-Saharan Africa.

Inefficiency

Factors that immensely reduce the value of the product or lead to underutilisation of its true potential, and hence have an impact on the earnings of participating value chain operators. Inefficiencies may include: (1) disorganisation (which may lead to high transaction costs); (2) wastefulness (e.g. post-harvest losses); (3) incompetence, and/or inadequacies (leading to e.g. low productivity)

Market queen

In many African countries, market queens perform a similar function to large retail firms elsewhere – coordinating supply and demand in an effective way. Further, they lead groups of market women (traders) controlling the access to open-air markets. Additionally, they might adopt a function of collecting taxes (or rather a share of the product) from anyone willing to sell their products on the market.

Olonka

Used to measure gari on open-air markets. One olonka corresponds to approximately 2.2 kilogrammes.

Outgrower scheme

Contractual partnership between small farmers and a processing and/or marketing firm for the purpose of commercial production, frequently at predetermined prices. Depending on the terms of contract, small farmers may receive technical assistance, seeds, agro-chemicals and some credit from their contract-partners, and are ensured of guaranteed markets, secure income and employment.

Poor

Poor are defined here by the people living below the poverty line as set by the World Bank, i.e. income less than US$ 1 per person per day. In the context of this study, the term poor is used not only for farmers, but for all people falling under the above mentioned category.

Pro-poor growth

The absolute concept is that growth is pro-poor when it reduces poverty (RAVALLION, 2004), whereas the relative concept is that growth is pro-poor when the poor benefit disproportionately, so implying a reduction in inequality (KAKWANI AND PERNIA, 2000). In other words, growth is pro-poor when the income of the poorest (e.g. of the lowest quintile in a population) increases equally or more than the increase in the average income (GTZ, 2006).

Pulp

A processed mango product (concentrated) of first order. It can be processed further to juice, ice-creams etc.

Resource-poor farmer

A resource-poor farmer in Ghana is characterised by: (1) a relatively small farm (less than 4 acres on average), (2) assets of mainly land and labour with low productivity, (3) sharecropping, (4) incapacity to feed the family adequately all year round, (5) high dependence on staple crops for proper nutrition, (6) provision of labour on other farmer's farms, (7) welfare-dependence during lean seasons, (8) risk aversion and (9) inability of sending all children to school.

Value chain actor

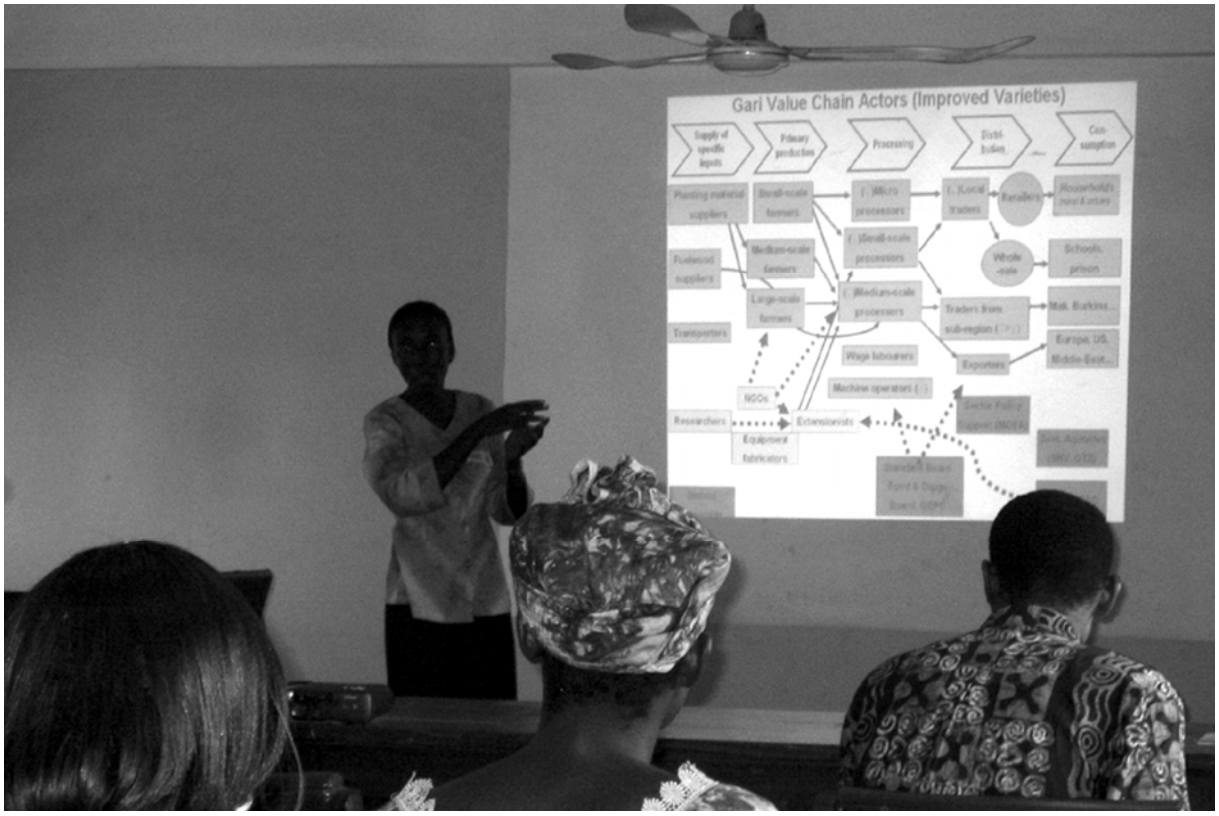
All individuals, enterprises and public agencies related to a value chain.

Value chain operator

Individuals and enterprises performing the basic functions in a value chain. Examples: suppliers of production inputs, primary producers, processors and traders.

Annex 1: Value chain maps

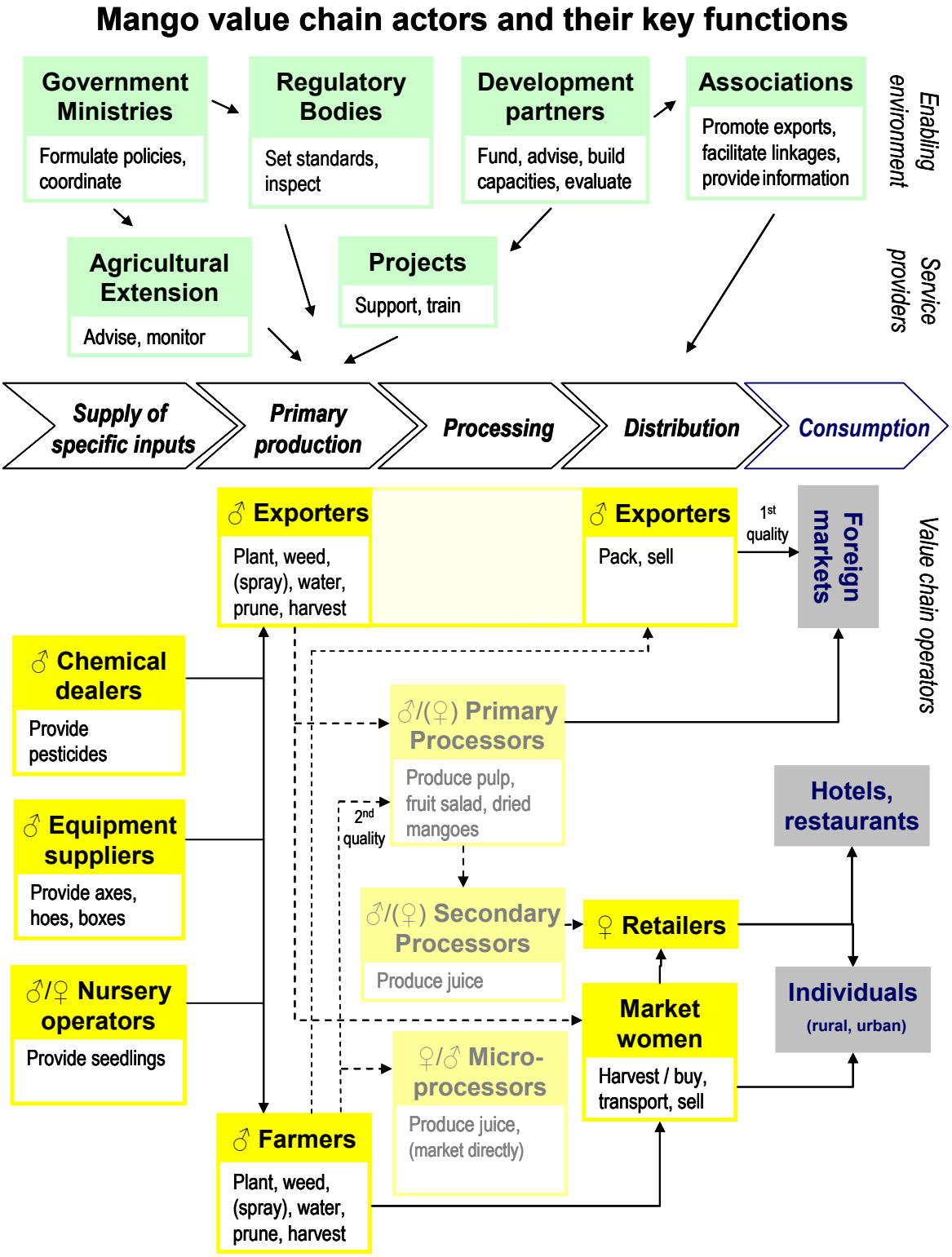
The following maps show current key actors and their main functions within the three value chains under review. They were drafted by the study team during the preparatory phase and discussed and finalised with various stakeholders during meetings and workshops.

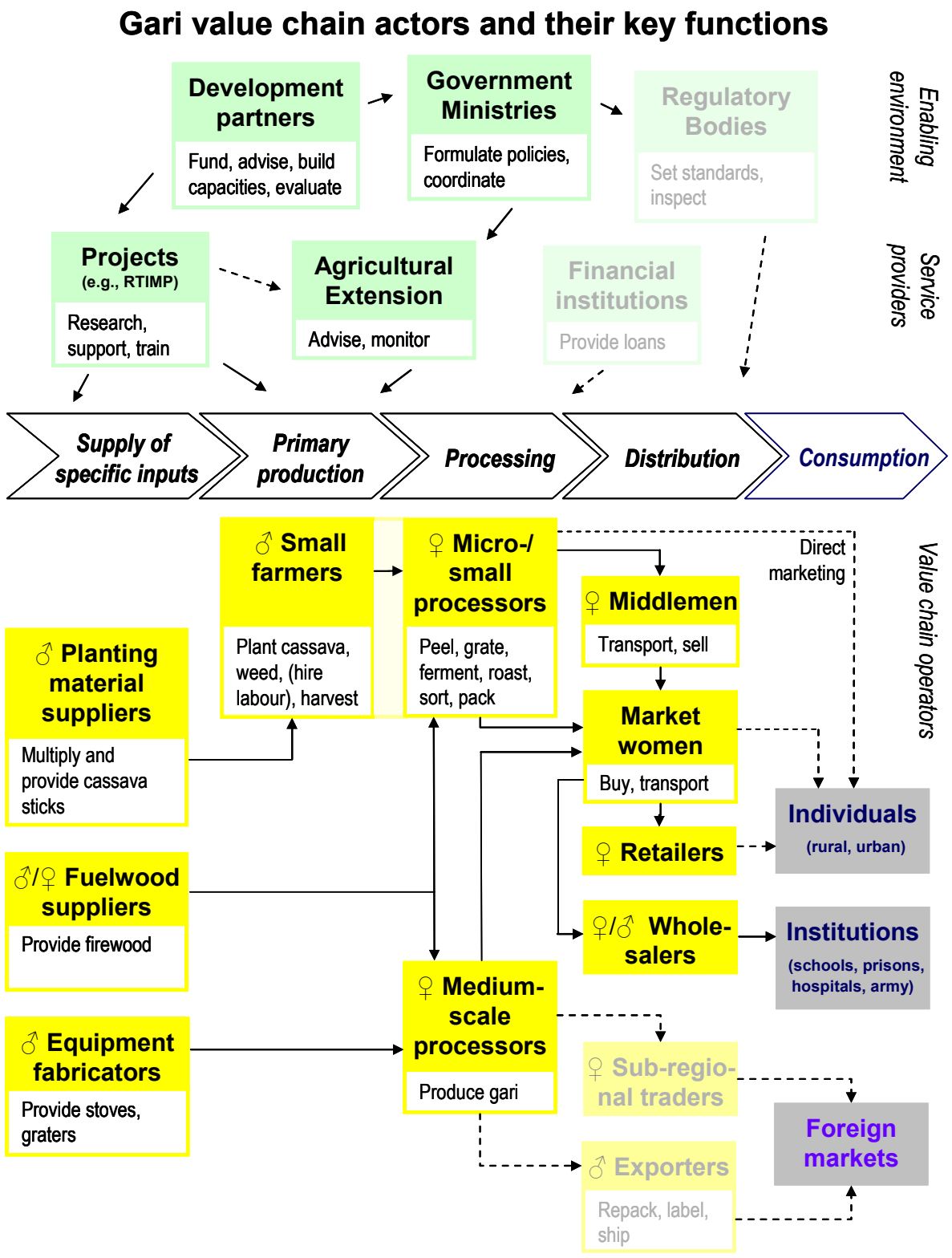


Presentation and discussion of the draft *gari* value chain map (Kumasi, 23/08/2006)

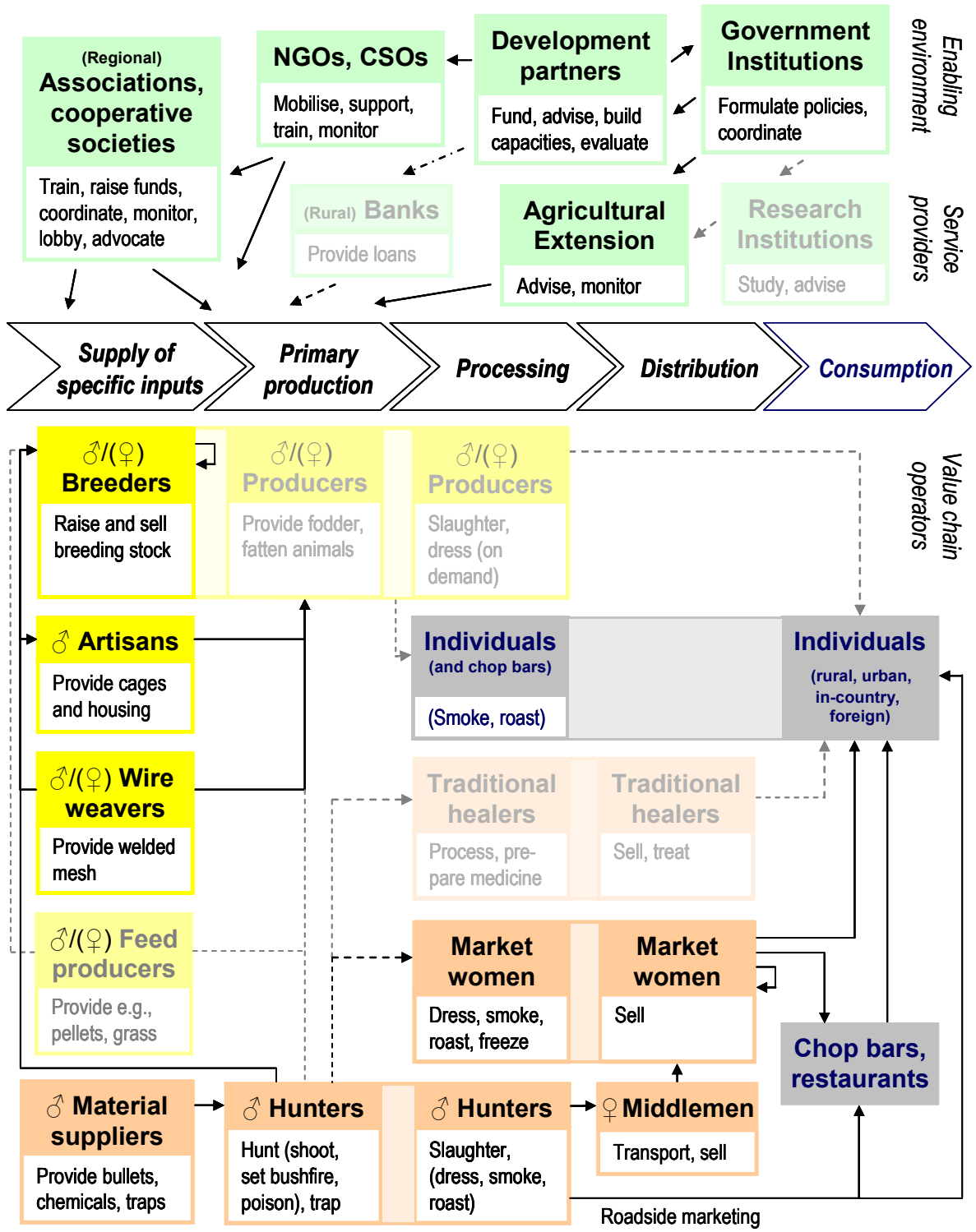
In the lower part, each map shows value chain operators and their relationships. Transparent light grey boxes indicate low importance of the respective operator, and dotted arrows indicate weak (infrequent or loose) relations between one operator and the other.

In the upper part, one finds key service providers and macro-level institutions that provide an enabling environment for the respective agribusiness. Again, institutions that play a minor role are displayed in light boxes, and dotted lines represent minor support activities or influence.


Mango value chain actors and their key functions
Government Ministries
Formulate policies, coordinate
Regulatory Bodies
Set standards, inspect
Development partners
Fund, advise, build capacities, evaluate
Associations
Promote exports, facilitate linkages, provide information
Enabling environment
Agricultural Extension
Advise, monitor
Projects
Support, train
Service providers
Supply of specific inputs
Primary production
Processing
Distribution
Consumption
♂ Exporters
Plant, weed, (spray), water, prune, harvest
♂ Exporters
Pack, sell
1st quality
Foreign markets
Value chain operators
♂ Chemical dealers
Provide pesticides
♂/(♀) Primary Processors
Produce pulp, fruit salad, dried mangoes
2nd quality
Hotels, restaurants
♂ Equipment suppliers
Provide axes, hoes, boxes
♂/(♀) Secondary Processors
Produce juice
♀ Retailers
♂/♀ Nursery operators
Provide seedlings
Market women
Harvest / buy, transport, sell
Individuals
(rural, urban)
♀/♂ Micro-processors
Produce juice, (market directly)
♂ Farmers
Plant, weed, (spray), water, prune, harvest


Gari value chain actors and their key functions
Development partners
Fund, advise, build capacities, evaluate
Government Ministries
Formulate policies, coordinate
Regulatory Bodies
Set standards, inspect
Enabling environment
Projects (e.g., RTIMP)
Research, support, train
Agricultural Extension
Advise, monitor
Financial institutions
Provide loans
Service providers
Supply of specific inputs
Primary production
Processing
Distribution
Consumption
♂ Small farmers
Plant cassava, weed, (hire labour), harvest
♀ Micro-/ small processors
Peel, grate, ferment, roast, sort, pack
♀ Middlemen
Transport, sell
Direct marketing
Value chain operators
♂ Planting material suppliers
Multiply and provide cassava sticks
Market women
Buy, transport
Individuals (rural, urban)
♀ Retailers
♂/♀ Fuelwood suppliers
Provide firewood
♀/♂ Whole-salers
Institutions (schools, prisons, hospitals, army)
♀ Medium-scale processors
Produce gari
♂ Equipment fabricators
Provide stoves, graters
♀ Sub-regio-nal traders
Foreign markets
♂ Exporters
Repack, label, ship

Grasscutter value chain actors and their key functions



Annex 2: Poverty orientation of support institutions

Mango

Several development institutions are involved in the promotion of mango production in Ghana.

ADRA supports farmers in rural areas by providing them with seedlings on a one-year credit basis. Additionally, they supply other types of seeds for intercropping, e.g. maize. This allows farmers to have an additional income from annual crops that can be used to pay back the loans for the mango seedlings. However, ADRA does not provide technical training on quality requirements and later maintenance of the trees. ADRA helps farmers to overcome the entry barrier of high initial costs. Possibly, some farmers supported by ADRA fall under the category of resource-poor.

The Ecumenical Association for Sustainable Agriculture and Rural Development (**ECASARD**) aims to increase food production and reduce rural poverty by promoting technologies that are economically viable and environmentally sound. The organisation focuses on strengthening farmer associations. The Abrono Organic Farming Project (ABOFAP) in the Techiman District for instance, has recently started to plant exotic mangoes.

In order to modernise agricultural production, **MOAP** seeks to increase the competitiveness of the Ghanaian Agricultural Sector. The programme supports the processing industry, for instance the tomato and mango processing company AfriqueLink. Furthermore, it builds up linkages between different value chain operators. Apart from that, MOAP provides training, e.g. in EurepGAP standards or quality management. The programme is open to all interested value chain operators, but does not specifically target the poor. During field visits, the study team could not identify many resource-poor farmers involved in MOAP's value chain support activities.

Similarly, **TIPCEE** seeks to achieve exponential growth in agricultural exports by increasing the competitiveness of Ghana's private sector in world markets. The USAID-funded project trains mango producers grouped in associations in GAPs such as pruning, input application, harvesting techniques and packaging (USAID, 2006:2).

TIPCEE carried out a GPS/GIS mapping of mango farms in the Southern Belt so that mango farms become traceable and attractive to potential exporters (USAID, 2006:20). However, as TIPCEE mainly operates in the Southern Belt and in few parts of BAR, the programme reaches out mainly to farmers with resources.

MoFA carries out research and development (R&D) of seedlings as well as training of farmers. However, most Agricultural Extension Agents (AEA) are still insufficiently skilled in mango production as the new exotic mango varieties require special knowl-

edge. Moreover, AEAs face constraints in reaching out to remote areas, which makes it difficult for them to provide extension services to resource-poor farmers.

ITFC, a private company located in Tamale, aims to produce organic mangoes for domestic as well for as export markets. The company is sponsored by several development organisations (e.g. AgroFair, Cordaid, Senter, and the United Nation Development Programme) and is therefore obliged to contribute to poverty reduction. The company operates a nucleus farm and an outgrower scheme, which is supposed to support community development and poverty alleviation. However, most of the farmers have not harvested yet. Furthermore, exports to the European Union have not taken place so far (Pers.Com: AMALIGO NYAABA, 2006). The system is promising in reducing entry barriers for smallholders, but the full extent of poverty orientation has still to been proven, and this can happen only after harvesting. ITFC does not specifically identify resource-poor farmers in the communities so that a large part of the outgrowers are not resource-poor.

To summarise, there are only a few support measures in place that specifically target the poor and aim to integrate them into the mango value chain.

Gari

The **Root and Tuber Improvement Programme (RTIP)**, financed by IFAD and the Government of Ghana, has supported farmers in adopting improved cassava varieties. Its key assumption that resource-poor farmers would readily adopt new technologies proved to be only partially correct as the resource-poor are not ready to take the risk involved in changing to new varieties. The first and most successful adopters were less vulnerable farmers with resources (land, labour, capital), all of which are required to implement the recommended changes. In addition, RTIP farmers were unable to transform increased output into increased income, largely as a result of production costs and low demand for their products. Inadequate market analysis by RTIP led to an overproduction of cassava resulting in a decline in cassava prices. In its interim evaluation report, RTIP suggests that future funding for reducing poverty through investment in root and tuber crops should emphasise post harvest production, marketing activities and the development of new market opportunities (RTIP, 2004).

Cassava farmers and *gari* processors complained that they are rarely visited by **MoFA** AEAs. Their focus is on cash crops rather than on roots and tubers. For MoFA staff it is vital to work with identifiable actors. AEAs said that the ratio of AEAs to farmers/processors is low and that MoFA staff often lack transport facilities. It seems to be more effective to advise associations or cooperatives rather than individual and

scattered value chain operators. Poor interviewees stated that they are disappointed with MoFA as it does not really help them in accessing loans.

In addition, extension officers do not teach farmers and processors about the costs they encounter in their business. Thus, *gari* value chain operators may persist with the *gari* business, even though they are incurring losses.

Grasscutter

At the meso and macro levels, regional associations of grasscutter rearers play the most important supportive role by providing training and supervision, raising funds and coordinating activities of their members. NGOs act as support institutions and mobilise and provide training and input materials to members of associations, groups and individuals. These activities are linked to development partners who fund and advise such NGOs to conduct capacity building and evaluation with their partners. Furthermore, the agricultural extension service advises and trains the group of primary producers (see Annex 1 on page 66).

At the macro level, the government, in particularly MoFA, formulates and coordinates support policies regarding the commodity. Rural banks partly provide loans to grasscutter producer associations.

A variety of support mechanisms, established by public and private organisations, targets and reaches the group of resource-poor farmers in different ways**. "Passing on the gift",** implemented by e.g. "Heifer Project International", requires that a recipient of a starter family (one male, four female animals) repays the gift with seven animals. Five animals are given to the donor, and the remaining two to another "financially handicapped farmer". If the recipient cannot afford cages, these are also given for free (Pers.Com: ABLEKUMA GRASSCUTTER FARMERS ASSOCIATION, 2006).

Donation of starter families and/or cages (e.g. by World Vision, CBUD, OICI, JICA and others) is another attempt to support resource-poor farmers in rural areas. JICA, for instance, requests participating farmers to undergo a training in grasscutter rearing, which is sponsored by the organisation. JICA then provides a starter kit of two females and one male to each farmer, in case he has proven his interest by providing a ready-built cage and secure housing for the animals. It turned out that most of the course participants did not start grasscutter production because of the high cost of standard cages (US$ 265). JICA started **extension on low-cost housing technologies** that reduces the investment costs significantly (Pers.Com: JASPER, 2006).

Furthermore, JICA and CBUD provide **short-term training for free** to farmers who are interested in grasscutter rearing but who have hardly any access to education due to their limited financial resources and their distance from urban centres.

Left: professional concrete housing structure
Top right: standard (2-tier) cage; bottom right: low-cost improvised cage

At farm level, it was observed that advanced grasscutter farmers provide **on-the-job training for farm labourers**. This is sometimes followed by a credit in kind, which helps the labourer to establish a breeding stock. In addition**, farmer-to-farmer consultations and information sharing** within the communities lead to a free transfer of know-how on grasscutter rearing for interested resource-poor farmers without any formal links to associations.